

Intermodal Logistics Park North Ltd

INTERMODAL LOGISTICS PARK NORTH (ILPN)

Intermodal Logistics Park North (ILPN) Strategic Rail Freight Interchange (SRFI)

Project reference TR510001

Preliminary Environmental Information Report (PEIR)

Chapter 09: Noise and vibration

October 2025

Planning Act 2008

The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017

This document forms a part of a Preliminary Environmental Information Report (PEIR) for the Intermodal Logistics Park North (ILPN) project.

A PEIR presents environmental information to assist consultees to form an informed view of the likely significant environmental effects of a proposed development and provide feedback.

This PEIR has been prepared by the project promoter, Intermodal Logistics Park North Ltd. The Proposed Development is described in Chapter 3 of the PEIR and is the subject of a public consultation.

Details of how to respond to the public consultation are provided at the end of Chapter 1 of the PEIR and on the project website:

<https://www.tritaxbigbox.co.uk/our-spaces/intermodal-logistics-park-north/>

This feedback will be taken into account by Intermodal Logistics Park North Ltd in the preparation of its application for a Development Consent Order for the project.

Chapter 9 ◆ Noise and vibration

INTRODUCTION

- 9.1 This chapter of the PEIR considers the potential noise and vibration effects that may arise from the construction and operation of the proposed Intermodal Logistics Park North (ILPN) Strategic Rail Freight Interchange (SRFI) and the associated highway works.
- 9.2 The Proposed Development has the potential to give rise to the following types of effects from the stated sources:
- Noise and vibration from the construction of the Main Site, Western Rail Chord and the Remote Highway Works (from both construction traffic and construction works).
 - Noise from the changes in road traffic flows on the highway network around the Main Site, including any effects of the Highway Works
 - Noise and vibration from the freight trains serving the SRFI travelling on the Chat Moss and West Coast Mainline
 - Noise arising from activity at the Main Site, including:
 - The road traffic serving the SRFI on the internal roads within the Main Site;
 - The freight trains serving the rail terminal and moving within the Main Site, including the associated loading and unloading activities;
 - Heavy goods vehicles (HGVs) and other operational activity at the Main Site, such as manoeuvring, loading and unloading at the proposed warehouses and freight terminal; and
 - Mechanical services plant associated with the warehousing at the Main Site.
- 9.3 It is not anticipated that the Proposed Development would give rise to any significant vibration effects from HGVs using new access roads or the Parkside Link Road, as these would be newly surfaced, smooth and free of irregularities which could otherwise induce vibration. Operational vibration from new roads is scoped out in DMRB, as a maintained road surface will be free of irregularities and therefore it will not have the potential to give rise to significant adverse effects. Therefore, operational vibration from vehicles travelling on the Parkside Link Road and new access roads is proposed to be scoped out of the assessment. These roads will be surveyed annually and maintained in good working order as and when required.
- 9.4 Regarding road traffic on the surrounding road network giving rise to ground borne vibration,

it is generally rare that this would result in perceptible levels of vibration inside dwellings or other sensitive receptors. The primary cause of this type of vibration is vehicles passing over irregularities in the road surface, rather than as a direct result of changes in traffic volume on the surrounding highway network. As such, it is proposed that specific assessment of this can be scoped out of the assessment, noting that HGVs will be directed to Junction 22 of the M6, as set out in Chapter 3, and the surrounding road network will be maintained by the Highway Authorities to prevent irregularities and potential vibration issues arising.

- 9.5 At the time of writing, the scheme development and noise assessment are a work in progress. Baseline sound and vibration surveys have been conducted, and the results are presented. The work to date has involved identifying the likely impacts from the Proposed Development, particularly from the Main Site. Based on this, an emerging mitigation strategy has been developed to minimise the likely impacts and effects on surrounding receptors, in accordance with Government Policy on noise.
- 9.6 The information required to undertake the operational road traffic noise assessment is not yet available. The noise assessment will be updated with this information when it becomes available. This will be shared with the host local authorities and published during a further targeted consultation in early 2026.
- 9.7 This chapter outlines the proposed assessment methodologies, data sources, and an initial overview of the likely impacts and effects based on work undertaken to date.
- 9.8 The following technical appendices support this chapter:
- Appendix 9.1 Glossary of noise & vibration terms
 - Appendix 9.2 Noise & vibration policy and guidance
 - Appendix 9.3 Construction assessment data and results
 - Appendix 9.4 Operational assessment data and results
 - Appendix 9.5 Noise & vibration baseline survey data & results

Competency

- 9.9 The noise and vibration surveys, predictions, assessments, and preparation of this draft chapter have been carried out by suitably qualified and experienced acousticians who are members of the Institute of Acoustics (IoA), the professional body for acousticians and noise consultants, following the guidance set out in Government policy and relevant British Standards.
- 9.10 Vanguardia is an acoustic consultancy with extensive experience in providing Environmental Statement noise and vibration chapters for a wide range of schemes, including previously securing consent for a Strategic Rail Freight Interchange under the Development Consent Order process. The practice is also a member of the Association of Noise Consultants.
- 9.11 The chapter was written by a Member of the IOA with over 15 years' experience in acoustic

consultant and has been reviewed by a Member of the IOA with over 13 years' experience.

RELEVANT LAW, POLICY AND GUIDANCE

- 9.12 For nationally significant road, rail, and strategic rail freight infrastructure projects (as defined in the Planning Act 2008), the National Networks National Policy Statement (NNNPS) outlines the relevant policy objectives.

National Networks National Policy Statement (NNNPS)¹

- 9.13 Paragraph 5.227 of the NNNPS states that in decision-making, due regard must have been given to the Noise Policy Statement for England² (NPSE), the National Planning Policy Framework³ (NPPF) December 2024 (as amended February 2025) and the Government's associated Planning Practice Guidance on Noise⁴ (PPG: N).
- 9.14 In terms of human and structural receptors, the NNNPS specifies (paragraph 5.233) that noise and vibration should be assessed using the principles outlined in the relevant British Standards and other relevant guidance. The prediction of road traffic noise should be based on the method described in Calculation of Road Traffic Noise⁵ (CRTN). The prediction of noise from railways should be based on the method described in Calculation of Railway Noise⁶ (CRN). For the prediction, assessment, and management of construction noise, the NNNPS states that reference should be made to any relevant British Standards and other guidance, which also provide examples of mitigation strategies.
- 9.15 The NNNPS also states that:
- 'Applicants should consider opportunities to address the noise issues associated with the Important Areas as identified through the noise action planning process' (Paragraph 5.238).⁷*

¹ National Networks National Policy Statement, Department for Transport (2024)

² Noise Policy Statement for England, Defra (2010)

³ Ministry of Housing, Communities & Local Government (2024) National Planning Policy Framework

⁴ Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities and Local Government (2019), Planning Practice Guidance: Noise. <https://www.gov.uk/guidance/noise--2>

⁵ Calculation of Road Traffic Noise, Department of Transport (1988)

⁶ Calculation of Railway Noise, Department of Transport (1995)

⁷ Important Areas are defined in the relevant Noise Action Plans produced by the Department for Environment, Food and Rural Affairs when implementing the Environmental Noise (England) Regulations 2006, as amended (SI 2006/2238).

9.16 Regarding mitigation, in paragraph 5.235, the NNNPS states that:

'The Examining Authority and the Secretary of State should consider whether mitigation measures are needed both for operational and construction noise over and above any which may form part of the project application. The Secretary of State may wish to impose requirements to ensure delivery and future maintenance of all mitigation measures.'

9.17 Furthermore, in paragraph 5.236, it states that

'Mitigation measures for the project should be proportionate and reasonable and may include one or more of the following:

- *engineering: containment of noise generated;*
- *materials: use of materials that reduce noise, (for example low noise road surfacing);*
- *lay-out: adequate distance between source and noise-sensitive receptors;*
- *incorporating good design: to minimise noise transmission through landscaping and screening by natural or purpose built barriers including topographical changes;*
- *administration: specifying appropriate noise criteria or times of use (for example, in the case of railway station public address systems).'*

9.18 The NNNPS (at Paragraph 5.237) also notes that for most projects, the relevant Noise Insulation Regulations will apply (see below). This means that the assessment must consider whether the Proposed Development is likely to trigger any eligibility under the terms of these Regulations and provide an indication of any likely eligibility.

9.19 Paragraph 5.241 of the NNNPS describes the obligation on the Secretary of State when considering the merits of the proposal:

'The Secretary of State should not grant development consent unless satisfied that the proposals will meet the following aims, within the context of Government policy on sustainable development:

- *avoid⁸ significant adverse impacts on health and quality of life from noise as a result of the new development;*
- *mitigate and minimise other adverse impacts on health and quality of life from noise from the new development;*
- *contribute to improvements to health and quality of life through the effective*

⁸ "Avoid" here does not mean a significant adverse effect cannot ever exist. Instead, it means make every effort so that significant adverse impacts do not occur. The hierarchy set out in the PPG(N) confirms this to be the case – see Table 9.1 of this Chapter. The reason is that the NPSE covers all sources and for historical legal reasons, there are certain circumstances (e.g., statutory nuisance legislation) where a significant adverse impact is lawfully allowed to occur.

management and control of noise, where possible.'

9.20 These statements reflect the aims of the Noise Policy Statement for England (NPSE).

Noise Policy Statement for England (NPSE)

9.21 The NPSE is the overarching Government policy on noise. It seeks to clarify the underlying principles and aims in past and existing policy documents, legislation, and guidance in relation to all forms of noise, including environmental noise, neighbour noise, and neighbourhood noise (but excluding noise in the workplace).

9.22 It uses the established concepts of No Observed Effect Level (NOEL) and Lowest Observed Adverse Effect Level (LOAEL). The NPSE extends these by introducing the Significant Observed Adverse Effect Level (SOAEL). This is the level above which significant adverse effects on health and quality of life occur. However, the explanatory note to the NPSE states that it is not possible to identify a single objective value to define SOAEL for noise that applies to all sources of noise in all situations. It is likely to vary for different noise sources, receptors, and times. The NPSE recognises that:

'Further research is required to increase understanding of what may constitute a significant adverse impact on health and quality of life from noise. However, not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available'.

9.23 Consequently, the practitioner must determine the appropriate threshold values to be adopted for the sources and situations being assessed, based on the available evidence.

9.24 The NPSE's vision is consistent with paragraph 5.195 of the NPSNN (paragraph 5.2.8 above). It is 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. This long-term vision is supported by the following aims:

- *Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development: 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.'*

9.25 Within the NPSE, the phrase 'within the context of Government policy on sustainable development' is used. This means that noise must not be treated in isolation. Instead, when implementing the aims of the policy, consideration should be given to the economic and social benefits of the activity causing the noise as well as the other environmental effects of the development.

9.26 The second aim of the NPSE refers to noise impacts that lie somewhere between LOAEL and

SOAEL. The NPSE asserts that, while this means that all reasonable steps should be taken to mitigate and minimise adverse effects, this does not mean that such adverse effects cannot occur.

National Planning Policy Framework (NPPF)

9.27 The National Planning Policy Framework (NPPF) (December 2024, as amended February 2025) is referenced in paragraph 5.193 of the NPSNN. The document sets out the Government's planning policy for England. At its heart is an intention to promote more sustainable development.

9.28 The relevant paragraphs concerning noise in the NPPF are:

Paragraph 187: 'Planning policies and decisions should contribute to and enhance the natural and local environment by:

e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by unacceptable levels of noise pollution⁹, ... Development should, wherever possible, should help to improve local environmental conditions'.

Paragraph 198 'Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or wider area to impacts that could arise from the development. In doing so they should:

a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and quality of life

b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.'

9.29 It can be seen from these paragraphs how the NPPF reflects the aims of the NPSE and the decision tests in the NNNPS. Furthermore, the NPPF refers to the NPSE for advice on achieving these policy aims, particularly in connection with adverse impacts. It is also evident from paragraph 187 that there is a higher level of impact than the significant adverse effect level, i.e., the unacceptable effect level. This is discussed further in paragraph 9.34 below.

Planning Practice Guidance: Noise (PPG: N)

9.30 Further government guidance on the consideration of noise for planning has been published as the Planning Practice Guidance for Noise (PPG: N) originally published in 2014. Its most recent revision was in July 2019. The PPG: N supports the NPPF by providing a range of advice.

9.31 Paragraph 003 notes that plan-making and decision-making should take account of the

⁹ Amongst other things

acoustic environment and, in doing so, 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.

9.32 The PPG: N includes a noise exposure hierarchy table and again references the NPSE. The hierarchy table (replicated in Table 9.1) provides descriptive (i.e., non-numerical) guidance on the potential effects of various degrees of noise exposure.

9.33 Paragraph 004 of the document states that while the word level is used in the definitions of NOEL, LOAEL and SOAEL, it does not mean that the effects can only be defined in terms of a single value of noise exposure. In some circumstances, adverse effects are defined in terms of a combination of more than one factor, such as noise exposure, the number of occurrences of the noise in a given time period, the duration of the noise and the time of day the noise occurs. The table confirms that adverse effects (i.e., between LOAEL and SOAEL, where noise starts to cause small changes in behaviour or attitude) should be mitigated and reduced to a minimum¹⁰.

Table 9.1 PPG: N Noise Exposure Hierarchy Table

Response	Examples of outcomes	Increasing effect level	Action
<i>No Observed Effect Level</i>			
Present and not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a change in the quality of life	No Observed Effect	No specific measures required
<i>No Observed Adverse Effect Level</i>			
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows	No Observed Adverse Effect	No specific measures required

¹⁰ With the NPSE confirming in its paragraph 2.24 that reasonable steps should be taken to achieve that outcome

Response	Examples of outcomes	Increasing effect level	Action
	for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a small actual or perceived change in the quality of life.		
<i>Lowest Observed Adverse Effect Level</i>			
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a small actual or perceived change in the quality of life.	Lowest Observed Adverse Effect	Mitigate and reduce to a minimum
<i>Significant Observed Adverse Effect Level</i>			
Present and disruptive	The noise causes a material change in behaviour, attitude or other physiological response, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to 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 sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Prevent

9.34 Increasing noise exposure will cause the SOAEL boundary to be crossed. As shown in the table, there are two levels of adverse effect above the SOAEL:

- The significant observed adverse effect level – at this level, noise causes a material change in behaviour e.g. keeping windows closed or avoiding certain activities at certain times. The planning process should be used to avoid this effect occurring, for example through choice of sites and use of appropriate mitigation (discussed further below). It is undesirable for such exposure to be caused, but as mentioned in Footnote 8, there are circumstances when such effects can occur. Decisions must take account of the economic and social benefit of the activity causing or affected by the noise caused.
- The unacceptable adverse effect level (UAEL) – at this level, noise exposure would cause extensive and sustained adverse changes in behaviour and/or health without the ability to mitigate the effects of the noise. Under these circumstances the impacts on health and quality of life are such that regardless of the benefits of the activity causing the noise, this situation must be prevented from occurring.

9.35 Regarding appropriate mitigation measures that can be employed to avoid significant adverse effects (and mitigate and minimise adverse effects), paragraph 010 of the PPG: N indicates that there are 4 broad types of mitigation:

- Engineering: reducing the noise generated at source and or containing the noise generate.
- Layout: where possible, optimising the distance between the source and noise sensitive receptors and/or incorporating good design to minimise noise transmission through the use of screening (by natural or purpose-built barriers or other buildings).
- Using planning conditions/obligations to restrict activities allowed on the site at certain times and/or specifying permissible noise levels differentiating as appropriate between different times of day, such as evening and late night.
- Mitigating the impact on areas likely to be affected by noise including through noise insulation when the impact is on a building.

National Policy Summary

9.36 With regard to Government policy on noise, it is recognised that:

- Adverse effects can occur, as long as reasonable steps have been taken to keep such effects to a minimum.
- Significant adverse effects should be avoided, but there may be circumstances where this cannot be achieved, even after the application of mitigation.
- Unacceptable adverse effects must not occur, regardless of the economic and social benefits that may arise from the activity generating the noise.

Local Policy

9.37 The local policy applicable to this assessment, as well as relevant policies related to noise and vibration, are listed below. Further details are provided in Appendix 9.2.

St Helens Local Plan up to 2037

- Policy LPA06: Transport and Travel.
- Policy LPA09: Parkside East.
- Policy LPA10: Parkside West.
- Policy LPD01: Ensuring Quality Development.

Greater Manchester Places for Everyone, 2024

- Policy JP-C5: Streets for All.
- Policy JP-C8: Transport Requirements of New Development.

Wigan Local Plan Core Strategy 2013

- This has been partially superseded by the Greater Manchester Places for Everyone Plan. However, Policy CP17: Environmental Protection remains relevant.

Wigan Unitary Development Plan 2006

- This has been partially superseded by the Greater Manchester Places for Everyone Plan. However, saved Policy EV1B: Pollution remains relevant.

Wigan Borough Local Plan: Initial draft for consultation, 2025

- Policy EN7: Protecting amenity and the environment.

Warrington Local Plan, 2023

- Policy ENV8 - Environmental and Amenity Protection.

9.38 In addition to the above local policy, any applicable Supplementary Planning Guidance or Documents produced by the Local Authorities will be taken into consideration where relevant to the Proposed Development and its potential noise and vibration effects.

Legislation

9.39 The most relevant legislation in the context of the noise and vibration assessment is listed below:

- The Noise Insulation Regulations, 1975 (as amended 1988).
- The Noise Insulation (Railways and Other Guided Transport Systems) Regulations, 1996.

Other relevant guidance

9.40 Additionally, the assessment will take into account several British Standards and other relevant guidance documents. These include:

- Association of Noise Consultants (ANC) Guidelines: Guidelines: Measurement & Assessment of Groundborne Noise & Vibration (ANC Guidelines), 2020.
- Calculation of Road Traffic Noise (CRTN), 1988.
- Calculation of Railway Noise (CRN), 1995.
- Design Manual for Roads and Bridges (DMRB), LA111 Noise and Vibration May 2020 Revision 2.
- Defra Additional Railway Noise Source Terms for 'Calculation of Rail Noise 1995'.
- BS 4142:2014+A1:2019 Method for rating and assessing industrial and commercial sound.
- BS 5228:2009+A1:2014 (Parts 1 and 2) Code of Practice for Noise and Vibration Control Construction and Open Sites.
- 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.
- ISO 9613-2:1996 Acoustics – Attenuation of sound during propagation outdoors part 2: General method of propagation.
- World Health Organisation, Guidelines for Community Noise (1999).
- IEMA Guidelines for Environmental Noise Impact Assessment (2014).

CONSULTATION TO DATE

9.41 An application for a Scoping Opinion regarding the Proposed Development was sent to PINS in November 2024 and the Scoping Opinion was received in December 2024. The EIA Scoping Opinion advice relevant to noise and vibration is set out in the table below including a response setting out how the matters raised have been addressed in this PEIR or will be addressed in the ES

Table 9.2 Scoping and informal consultation summary

Consultee	Consultee comment	Response
EIA Scoping Consultation		
PINS 3.3.1	The Scoping Report seeks to scope out vibration effects beyond 100m from construction activities on the basis that there would not be any significant effects beyond this distance. The Inspectorate agrees that this matter is unlikely to lead to significant effects and can be scoped out of the assessment.	The Applicant notes this comment.
PINS 3.3.2	The Scoping Report seeks to scope out operational vibration from vehicles travelling along the highway network on the basis of that a smooth road surface is unlikely to be a source of significant vibration. The Scoping Report does not set out which roads in the local highway network are likely to be the main source of operational traffic nor their condition. Given this uncertainty, and as the condition of these roads may also be outside the control of the Applicant, the Inspectorate does not therefore agree to scope this matter out at this stage.	The Applicant will provide details of which roads are predicted to carry operational traffic. The Applicant will provide an explanation of how the relevant roads from the surrounding road network would be maintained to prevent surface irregularities, which are the primary cause of vibration of this type, in the ES noise and vibration chapter (see Paragraph 8.104 and Table 8.10 of the Scoping Report).
PINS 3.3.3	The Scoping Report seeks to scope out operational vibration from vehicles travelling along Parkside Link Road as this is a new road that would therefore be unlikely to generate vibration effects. The ES would also set out the measures that would be applied to ensure the surface was maintained to	The Applicant notes this comment (see Paragraph 9.4).

Consultee	Consultee comment	Response
	prevent irregularities. The Inspectorate agrees that provided evidence is supplied in the ES of how the measures to maintain the road will be secured, that this matter can be scoped out of the assessment.	
PINS 3.3.4	The ES should include an assessment of the proposed energy infrastructure, including operation of the battery storage and CHP plant, where these are included as part of the Proposed Development and where significant effects are likely to occur.	The Applicant no longer proposes any CHP plant as part of the Proposed Development. The feasibility of undertaking predictions/assessment of noise from plant will be reviewed as the EIA process progresses. However, it is considered unlikely that sufficient details will be available at the application stage to undertake a detailed assessment. Therefore, the primary approach to addressing plant noise will be as stated in the third bullet of Paragraph 8.112 of the Scoping Report, i.e., target noise levels will be defined based on the results of the baseline noise survey. The DCO will include a requirement for the assessment of such plant, once details are finalised, with reference to the target noise levels, which will be submitted to the relevant Planning Authority for their approval.
St Helens Borough	Vibration effects from rail operations should be assessed in line with BS 6472, particularly for sensitive receptors closest	Vibration effects will be assessed in line with BS 6472 for

Consultee	Consultee comment	Response
Council	to the proposed railway.	the relevant receptor locations.
St Helens Borough Council	Low-frequency noise from freight trains should be assessed.	This is only expected to be an issue in relation to groundborne noise as a result of trains passing through tunnels, which is not the case here. Therefore, it is not necessary to consider low-frequency noise from freight trains. For example, low-frequency noise is associated with groundborne vibration re-radiating as noise and would be assessed if the railway lines are underground. In the context of the Proposed Development , the dominant source would be the airborne component as opposed to the groundborne component. Therefore, it is not considered necessary to assess low-frequency noise.
Informal Consultation		
Wigan Council	Noise and Vibration It has been noted that long, and short term, monitoring has been undertaken at what are considered to be appropriate locations. As part of the application process going forward, detailed modelling, and possible additional monitoring will be required, along with the identification of appropriate and satisfactory mitigation measures, if necessary. WMBC would be happy to engage in the scope of that monitoring directly if required.	It was confirmed with the Council that the approach proposed in the Scoping Report, including the noise monitoring and receptor plans, were acceptable. Noise monitoring has been undertaken as agreed. The requirement for any additional monitoring to be undertaken will be reviewed as the Proposed Development progresses further and more information becomes available on the proposed Remote Highway

Consultee	Consultee comment	Response
		Works.
Winwick Parish Council No. 17	Noise and Light Pollution The SRFI/logistics park is a 24-hour operation, including the movement of freight, trains, HGVs and workforce commuting. This would result in a constant level of noise that would disturb the peace and tranquillity of the surrounding residential areas.	The noise impact assessment will take fully into account all the activity on-site (both day and night) that could cause an adverse noise impact on those living nearby. Baseline sound monitoring has taken place at various locations around the site, so that the assessment can take account of the existing sound environment when determining the significance of noise effects.
Winwick Parish Council No. 18	The constant noise of trucks and trains, coupled with the noise from loading and unloading operations, would be a major disturbance for the community that would not only impact daily life but also have long-term health effects, including increased stress levels, sleep disturbances, and associated health problems.	As is standard practice for this type of development, the noise impact assessment will take account of both the number of lorry and train movements that are expected to occur over various time periods (both day and night) and also the noise from the loading and unloading operations. The assessment will consider the impact both on health and quality of life as required by national noise policy. If significant adverse effects are identified, these will be mitigated so that they are avoided as required by policy. For any adverse effects, reasonable steps will be taken to mitigate and minimise, again as required by policy.
CPRE– Lancashire, Liverpool City Region, Greater Manchester	Light pollution is likely to be an issue even in a more proportionate SRFI. This will have an impact on wildlife and residential amenity as will the noise of a such a large 24 hour facility.	The noise impact assessment will take fully into account all the activity on-site (both day and night) that could cause an adverse noise impact on those living nearby. Baseline sound monitoring has taken place at various

Consultee	Consultee comment	Response
No. 7	The proposal would have a negative impact on views of the area for example from Winter Hill and this would be exacerbated by the light pollution as well as impacting on the openness of the area.	locations around the site, so that the assessment can take account of the existing sound environment when determining whether or not a significant adverse noise effect is expected. Potential effects on light pollution are addressed in Chapter 10.
Liverpool City Region Combined Authority (LCRCA) No. 14	Additionally, we welcome further insight into how Tritax plans to enhance the environmental sustainability of the project, particularly in relation to biodiversity, water management and noise. We are confident that, by prioritising these aspects, Tritax can ensure the development remains environmentally responsible throughout its planning, construction and operational phases, supporting both the region's sustainability goals and the well-being of local communities.	The output of the noise assessment will be tested against the requirements of national policy which state that significant adverse impacts must be avoided, and adverse impacts should be mitigated and minimised, all within the context of government policy on sustainable development. Therefore, by definition, issues of sustainability will be embedded in the noise impact assessment process.
St Helens Council No. 12	The ILPN Acoustics and Vibration Topic Paper has been reviewed by the Noise Officer in Environmental Health, and there are no objections or comments to raise in relation to the content of the Topic Paper.	The Applicant notes the response.
Warrington Borough Council No. 20	Noise The submitted noise and vibration paper is noted. It is still at an early stage despite some background long term and short term noise measurements having taken place. The paper notes the points raised at a recent meeting where Warrington Noise Officers raised the issue that until we know precisely what will	It is recognised that until the assessment of the impact of the project is more developed, it is not possible for Warrington BC to provide detailed comments. However, it is noted that the relevant legislation and standards have been reviewed and these are in line with expectations

Consultee	Consultee comment	Response
	be involved for the RF terminal then we cannot necessarily target our responses accordingly. Whilst slightly more background and descriptive information is present within this wider submission than has been presented before, this point raised at the joint meeting remains true and accurate – we are expected to comment on a large scale development (DCO level) that has not been developed in this borough but are still expected to comment on something we do not yet fully understand nor has been explained to consultees in sufficient detail to enable specific comments to be raised. The relevant legislation and standards have been reviewed and these are in line with expectations. Further work is advised to be occurring and noise modelling of the proposals will be undertaken in due course. Until we are in receipt of such information then we cannot realistically provide any further comments as at this stage we have not been presented with any data on which to base judgement or advise on the acceptability or otherwise of the proposals.	As indicated, more information will become available when the assessment is more developed. This will include predictions of the potential noise and vibration impact and the identification of any mitigation required. As this project will be promulgated as a DCO, the requirements of the National Networks National Policy Statement apply. In particular, with regard to noise and vibration, paragraph 5.241 which says: <i>The Secretary of State should not grant development consent unless satisfied that the proposals will meet the following aims, within the context of government policy on sustainable development:</i> <i>avoid significant adverse impacts on health and quality of life from noise as a result of the new development</i> <i>mitigate and minimise other adverse impacts on health and quality of life from noise from the new development</i> <i>contribute to improvements to health and quality of life through the effective management and control of noise, where possible</i> The assessment process will address these requirements.

9.42 In addition to the Scoping Opinion, additional consultation has been undertaken with the host authorities in August and November 2024 as detailed in the table below.

Table 9.3 Other consultation

Consultee	Date	Consultee comment	Response
St Helens Borough Council, Warrington Borough Council, Wigan Council	August and November 2024	Following presentation of proposed approach to baseline noise and vibration survey, and follow up presentation to cover minor differences in survey as undertaken, consultees were content with survey as undertaken.	Noted.
St Helens Borough Council, Warrington Borough Council, Wigan Council	August and November 2024	Following discussion of proposed overall scope of the noise and vibration assessment, consultees considered approach to be reasonable.	Noted.

- 9.43 Traffic modelling is ongoing in consultation with the Transport Working Group (TWG) but will not be completed in time for the write up of statutory consultation.
- 9.44 Based on discussion with the TWG, 15 off-site options including a relief road for the southern side of Lane Head will be included in the draft Order Limits and assessed further as part of the traffic modelling.
- 9.45 Potential highway mitigation options are identified and evaluated in the Highway Mitigation Options Report (Appendix 7.2) for statutory consultation.
- 9.46 Once the final highways mitigation package has been settled, it is proposed that a second round of statutory consultation will be undertaken in Q1 2026. This will be a targeted consultation exercise which will focus on traffic impacts, highways mitigation and the associated air quality and noise impacts.

METHODOLOGY AND DATA SOURCES

Approach to the Assessment

- 9.47 The Proposed Development has the potential to give rise to several different types of noise and vibration impacts. Broadly speaking, these comprise:
- Construction noise arising from development of the Main Site and the Remote Highway Works.
 - Construction vibration (depending on the construction piling techniques to be used).
 - Operational road traffic noise resulting from the change in road traffic flows on the highway network around the Main Site and associated Highway Works.
 - Operational railway noise and vibration from the freight trains serving the SRFI travelling along the Chat Moss line.
 - Operational noise arising from the Main Site.
- 9.48 The assessment methodology used for each type of source is different in terms of how the potential noise or vibration impact is predicted and how the effect is assessed. In line with Government policy and where practicable, threshold levels have been defined for LOAELs and SOAELs for the different noise sources considered in the assessment.
- 9.49 The assumptions that have been made for each element of the predictions and subsequent assessment has been clearly stated in the supporting technical appendices. In general, where the receptor is a building, sound has been predicted at a distance of 1 m from the receptor façade, and unless otherwise stated, it excludes the effect of acoustic reflection from that façade (i.e. a free field level at the façade).
- 9.50 The Institute of Environmental Management and Assessment (IEMA) published their

Guidelines for Environmental Noise Impact Assessment in 2014¹¹. The document describes a process for undertaking such assessments. It notes that the extent of the effects of noise impact can rarely be determined solely by the difference between current and future noise levels, and that there are other factors to consider when determining potential effects. This principle has been followed in the assessment.

- 9.51 The magnitude of the impact and the significance of the effect are dependent upon several factors, including:
- the existing sound environment;
 - the noise level generated by the particular activity;
 - the change from the baseline (existing sound environment) or future baseline (i.e. the 'do minimum' situation) as a result of the new noise source;
 - the duration, timing and character of the different noise sources; and
 - in some situations, the number of dwellings affected can form part of the assessment of significance.
- 9.52 The criteria for determining the extent of the impacts and effects of noise and vibration inherently reflect the potential effects on human health and wellbeing and thus enable any adverse effects from the Proposed Development to be identified. Where threshold values are presented, these are generally based on residential dwellings and private amenity spaces to reflect the impact on human health. The greater the adverse effect at the receptor, the greater the potential impacts on human health and wellbeing.
- 9.53 The assessment methodologies and significance criteria applied to each element of the assessment are described below.

¹¹ *Guidelines for Environmental Noise Impact Assessment, IEMA (2014)*

Study Area

- 9.54 The noise and vibration assessment will be a receptor led approach, focusing on the most affected receptors. The specific receptor locations will be identified as the assessment progresses.
- 9.55 However, regarding the study area, there are some distance-related criteria for certain impacts and effects which will be taken into account. These are discussed below.
- Construction vibration – DMRB indicates a study area of 100m from the closest construction activity with the potential to generate vibration is normally sufficient.
 - Operational vibration – as per the construction vibration assessment, the study area will be limited to receptors within a lateral distance of 100 m of the rail line. The longitudinal extent of the study area will be up to the point where the freight trains serving the Proposed Development join the West Coast Mainline to the west, via the Chat Moss line and the line between Earlestown East and Winwick junctions, which has a total length of approximately 4.6 km. A similar length to the east of the Proposed Development along the Chat Moss line will also be considered, as well as the section of line between Newton-le-Willows and Golborne junctions to the north, and around 2.4 km of the Chat Moss line as it continues to the west of Earlestown East Junction.
 - Construction noise from highway works – DMRB indicates that a study area of 300 m from the closest construction activity is normally sufficient.
 - Operational noise from highway works – DMRB indicates this should be considered within 600m of new road links or links physically changed or bypassed by the Proposed Development, and within 50m of other road links with the potential to experience a change in the basic noise level (BNL) of more than 1.0 dB(A) as a result of the Proposed Development. The basic noise level is the calculated reference noise level from a road link, based on traffic characteristics. It represents the A-weighted sound pressure level exceeded for 10% of the time (L_{A10}) at a reference distance of 10 metres from the nearside carriageway edge.
 - Operational noise from additional movements on mainline rail network – the Noise Insulation (Railways and Other Guided Transport Systems) Regulations 1996 indicate a distance of 300 m from the nearest running rail should be considered. Therefore, receptors will be considered within a lateral distance of 300 m from the track. The longitudinal extent of the study area will be up to the point where the freight trains serving the Proposed Development join the West Coast Mainline to the west, via the Chat Moss line and the line between Earlestown East and Winwick junctions, which has a total length of approximately 4.6 km. A similar length to the east of the Proposed Development along the Chat Moss line will also be considered, as well as the section of line between Newton-le-Willows and Golborne junctions to the north, and around 2.4 km of the Chat Moss line as it continues to the west of Earlestown East Junction.

Important Areas

- 9.56 The Government, through consultation with Defra and local authorities, has prioritised areas

where people are most exposed to noise and are at greatest risk of experiencing significant adverse impact to health and quality of life due to noise exposure. These identified areas are termed 'Important Areas' (IAs). There are several IAs in the vicinity of the Proposed Development which are shown in Figure 9.1.

- 9.57 The NPSNN indicates that Applicants are encouraged to consider opportunities to address noise issues associated with IAs. This will be considered at the ES stage of the ILPN SRFI.

Noise from construction activities

- 9.58 Noise from construction activities associated with the ILPN SRFI, and its component parts, has been predicted at the relevant receptors, using the methodologies described in Annex F of the British Standard BS 5228-1:2009+A1:2014 and the International Standard ISO 9613-2:2024 using the noise modelling software package CadnaA. Where activities will take place at multiple locations, such as bulk earthworks, for example, the activity has been modelled in several positions representing a reasonable worst-case relative to each receptor (i.e., in an area of the relevant site close to each receptor); that worst-case predicted activity noise level has then been used for the assessment at the corresponding receptor.
- 9.59 Detailed information on construction techniques, plant, and other relevant aspects is not yet available, given the current stage of the development proposals. Therefore, the predictions are based on preliminary information, robust assumptions and best practice methods.
- 9.60 Most of the works are planned to take place during the daytime (core hours), and the primary assessment has been undertaken on this basis. However, regarding the Highway Works, there are expected to be some periods when out-of-hours and night working may be required due to highway constraints, e.g., where it is not practicable to close a section of road during the day. For core hours of work, it can be assumed that all activities will take place along the full extent of the works area. For other times, the likely impacts are dependent on multiple factors, including the specific location of the works, the time they take place (as different thresholds depend on the time), and exactly what works need to be undertaken, which may be limited compared with those taking place during core hours. This level of detail is not currently available; therefore, out-of-hours works have been considered in high-level qualitative terms, based on the understanding that full details will be provided in the outline Construction Environmental Management Plan (oCEMP) produced for each works package prior to their implementation.
- 9.61 The potential significance of effects associated with the predicted construction noise levels has been assessed using the thresholds set out in Table 9.4. The values are based on the guidance within Annex E of BS 5228-1:2009+A1:2014 and are expressed in terms of the effect level definitions found in the current Government noise policy. The Lowest Observed Adverse Effect Level (LOAEL), above which adverse effects can be detected, and the Significant Observed Adverse Effect Level (SOAEL), above which significant adverse effects can occur. In line with the guidance contained within BS 5228-1:2009+A1:2014, a significant effect is indicated where the SOAEL is exceeded for a given period, as stated at the bottom of the table.

Table 9.4 Effect thresholds and significance criteria for construction noise

Effect level	Time period (T)	Threshold value (dB L _{Aeq,T}) ^{1,2}
LOAEL	Core hours works: Mon-Sat, 07:00-19:00 (12hr)	65
	Out of hours works: Mon-Sat, 19:00-23:00 (4hr); or Sun ³ , 07:00-23:00 (16hr).	55
	Night works: Mon-Sun, 23:00-07:00 (8hr).	45
SOAEL⁴	Core hours works: Mon-Sat, 07:00-19:00 (12hr)).	75
	Out of hours works: Mon-Sat, 19:00-23:00 (4hr); or Sun ² , 07:00-23:00 (16hr).	65
	Night works: Mon-Sun, 23:00-07:00 (8hr).	55

¹ The threshold values apply to residential receptors and those with a similar sensitivity to noise.

² Values apply to a location one metre from a building façade containing a window, including the effect of the acoustic reflection from that façade. Usually referred to as a façade level.

³ And public holidays.

⁴ A significant effect is predicted if the programme of works indicates that the SOAEL threshold is likely to be exceeded over a period of at least one month.

9.62 Where required, details of potential mitigation measures to avoid any significant effects and mitigate and minimise any adverse effects from construction noise have been provided, based on the principles of best practicable means (BPM).

Noise from construction road traffic

9.63 The prediction and assessment of noise from construction traffic on the road network around the ILPN SRFI, and its component parts, follows the principles of the methodology described in document LA 111, part of the Design Manual for Roads and Bridges (DMRB). Road traffic

noise both with and without the presence of construction traffic (based on the peak period of construction traffic activity) will be calculated using the procedure described in the Calculation for Road Traffic Noise (CRTN) for the relevant roads using information provided by the project transport consultant (Hydrock).

- 9.64 The potential significance of effects associated with any predicted temporary increases in road traffic noise due to construction traffic has been assessed using the thresholds set out in Table 9.5, reflecting those included in LA 111. As stated at the bottom of the table, a significant effect is indicated where a moderate or major increase is predicted for a given period.

Table 9.5 Impact magnitudes and significance criteria for change in road traffic noise (construction traffic)

Magnitude of Impact	Increase in noise level (dB)
Major ¹	Greater than or equal to 5.0
Moderate ¹	Greater than or equal to 3.0 and less than 5.0
Minor	Greater than or equal to 1.0 and less than 3.0
Negligible	Less than 1.0
¹ Construction traffic noise shall constitute a significant effect where it is determined that a major or moderate magnitude of impact will occur for a duration exceeding: - 10 or more days or nights in any 15 consecutive days or nights; - a total number of days exceeding 40 in any 6 consecutive months.	

Vibration from construction activities

- 9.65 Where construction activity has been identified as having the potential to generate levels of vibration that could adversely affect receptors, i.e. the building occupants, and a receptor has been identified as within 100 m of the activity, potential levels of vibration have been considered based on the prediction methodologies and measured data provided in the British Standard BS 5228-2:2009+A1:2014¹². These levels have been converted to the vibration dose value (VDV) metric as defined in the British Standard BS 6472-1:2008¹³ for the day/night

¹² BS 5228-2:2009+A1:2014 *Code of Practice for noise and vibration control on construction and open sites, Part 2: Vibration*

¹³ BS 6472-1:2008 *Guide to evaluation of human exposure to vibration in buildings, Part 1: Vibration sources*

period using the method from the ANC guidelines¹⁴.

- 9.66 With regard to the likelihood of the Remote Highway Works taking place during the out-of-hours and night periods due to highway constraints, a similar approach has been taken as for noise (see paragraph above).
- 9.67 The potential significance of effects associated with construction vibration has been assessed using the thresholds set out in Table 9.6. The values are based on the guidance within Annex B of BS 5228-2:2009+A1:2014 and current industry best practice on vibration¹⁵, and are expressed in terms of the effect level definitions found in the current national noise policy. While the policy only refers to noise exposure, it is helpful to adopt the same principles when assessing vibration impacts and effects.

Table 9.6 Effect thresholds and significance criteria for construction vibration

Effect level	Time period (T)	Threshold value (VDV m/s ^{1.75}) ^{1,2}
LOAEL	Day (07:00-23:00)	0.2
	Night (23:00-07:00)	0.1
SOAEL3	Day (07:00-23:00)	0.8
	Night (23:00-07:00)	0.4
¹ The threshold values apply to residential receptors and those with a similar sensitivity to vibration. ² Values apply to a location on the floor inside a building, near but not at the centre of any habitable room. ³ A significant effect is indicated if the programme of works indicates that the SOAEL threshold value is likely to be exceeded for two or more consecutive days.		

- 9.68 In addition to considering the potential adverse effects on building occupants, consideration has also been given to the potential damage to buildings and other structures caused by construction vibration. Based on best practice from BS 5228-2 and benchmark projects including HS2, a peak particle velocity (PPV) threshold of 3 mm/s, applicable to structurally

other than blasting

¹⁴ Association of Noise Consultants (2020), *ANC Guidelines: Measurement & Assessment of Groundborne Noise & Vibration*

¹⁵ High Speed Two (HS2) Limited (2017), *High Speed Two Phase One Information Paper E23: Control of construction noise and vibration*

sound, unsound and heritage receptors, has been selected to indicate the onset of potential damage. However, it should be noted that this threshold is precautionary and, in most cases, could be increased following further, specific investigation/condition surveys of the relevant structure where required.

Operational Assessment Methodology

Noise from operational road traffic

- 9.69 Traffic noise from the roads surrounding the ILPN SRFI, as well as its component parts, will be predicted at the relevant receptors both with and without the presence of vehicles associated with the operation of the ILPN SRFI, and the changes in road layouts resulting from the Remote Highway Works. The predictions use the procedure described in CRTN using the noise modelling software package CadnaA.
- 9.70 The potential significance of effects associated with any predicted increases in road traffic noise due to operational traffic (i.e., the difference in predicted road traffic noise levels for the do-minimum and do-something scenarios) will be assessed by considering both the do-something noise exposure level and the magnitude of the change.
- 9.71 Firstly, the predicted road traffic noise levels at the receptors for the do-something scenario have been compared to the thresholds presented in Table 9.7, expressed in terms of current Government noise policy (i.e., as LOAELs and SOAELs).

Table 9.7 Thresholds of potential effects from road traffic noise at residences¹⁶

Time period	Effect level	Noise exposure threshold value
Day (07:00–23:00)	LOAEL	50 dB $L_{Aeq,16hr}$ (free-field) ^{a,b}
	SOAEL	63 dB $L_{Aeq,16hr}$ (free-field) ^{a,c}
Night (23.00–07.00)	LOAEL	40 dB L_{night} (free-field) ^d
	SOAEL	55 dB L_{night} (free-field) ^d
Notes: ^a The average daily value (07:00 – 23:00 hours) at a position one metre from a residential building façade containing a window, ignoring the effect of an acoustic reflection from that façade. ^b equivalent to 55 dB $L_{A10,18hr}$ façade.		

¹⁶ Values based on those used for the assessment of other schemes such as the A14 DCO and Northampton Gateway SRFI DCO, and those presented in the DMRB.

Time period	Effect level	Noise exposure threshold value
^c equivalent 68 dB $L_{A10,18hr}$ façade		
^d The average nightly value (23:00 – 07:00 hours) at a position one metre from a residential building façade containing a window, ignoring the effect of an acoustic reflection from that façade.		

9.72 Secondly, if a do-something scenario predicts a road traffic noise level exceeding the LOAEL, the change between the results of the corresponding do-minimum and do-something scenarios (i.e., for the same year) has been calculated for the relevant period (i.e., day or night). The change has then been compared to the magnitude of impact categories presented in Table 9.8, depending on whether the do-something effect level is between LOAEL and SOAEL, or equal to or above the SOAEL.

Table 9.8 Impact magnitude and significance criteria for change in road traffic noise (operational traffic)¹⁷

Magnitude of Impact	Day (07:00–23:00)		Night (23.00–07.00)	
	Do-something noise exposure effect level (dB $L_{Aeq,T}$)		Do-something noise exposure effect level (dB L_{night})	
	Between LOAEL and SOAEL	SOAEL or greater	Between LOAEL and SOAEL	SOAEL or greater
	Change in road traffic noise level		Change in road traffic noise level	
No Change	0	0	0	0
Negligible	0.1 – 2.9 dB(A)	0.1 – 0.9 dB(A)	0.1 – 0.9 dB(A)	0.1 – 0.9 dB(A)
Minor	3.0 – 4.9 dB(A)	1.0 – 2.9 dB(A)	1.0 – 2.9 dB(A)	1.0 – 2.9 dB(A)
Moderate	5.0 – 9.9 dB(A)	3.0 – 4.9 dB(A)	3.0 – 4.9 dB(A)	3.0 – 4.9 dB(A)

¹⁷ Values based on those presented in the DMRB, modified to reflect Government noise policy; in particular, where road traffic noise levels are below the SOAEL, significant adverse effects would not generally be expected. This approach was adopted for the Northampton Gateway Strategic Rail Freight Interchange approved by the Secretary of State pursuant to The Northampton Gateway Rail Freight Interchange Order 2019 no.1358).

Magnitude of Impact	Day (07:00–23:00)		Night (23.00–07.00)	
	Do-something noise exposure effect level (dB L _{Aeq,T})		Do-something noise exposure effect level (dB L _{night})	
	Between LOAEL and SOAEL	SOAEL or greater	Between LOAEL and SOAEL	SOAEL or greater
	Change in road traffic noise level		Change in road traffic noise level	
Major	≥ 10.0 dB(A)	≥ 5.0 dB(A)	≥ 5.0 dB(A)	≥ 5.0 dB(A)
NOTE: If the result for any property falls in the categories shown by the shaded boxes with the values in bold, this indicates that the property is regarded as experiencing a significant adverse effect.				

- 9.73 Where both the predicted road traffic noise level for the do-something scenario exceeds the relevant SOAEL from Table 9.7, and the change between the do-minimum and do-something scenarios is within the ranges shown in the shaded boxes with bold text from Table 9.8, then a significant effect is indicated for the relevant time period. Note that in line with Government policy on noise, reasonable steps should be taken to mitigate and minimise the non-significant adverse impacts which exceed the LOAEL but not the SOAEL, particularly those where the impact magnitude is moderate or major.

Noise from operational rail

- 9.74 Changes in railway noise from freight trains serving ILPN SRFI will be predicted in accordance with the methodology in the Calculation of Railway Noise. Impacts will be considered at receptors within a longitudinal distance of up to the point where the freight trains serving the Proposed Development join the West Coast Mainline to the west, via the Chat Moss line and the line between Earlestown East and Winwick junctions, which has a total length of approximately 4.6 km. A similar length to the east of the Proposed Development along the Chat Moss line will also be considered, as well as the section of line between Newton-le-Willows and Golborne junctions to the north, and around 2.4 km of the Chat Moss line as it continues to the west of Earlestown East Junction. Receptors will be considered within a lateral distance of 300 m from the track.
- 9.75 Predictions will be undertaken for the baseline situation (i.e. do minimum, DM) and then with the Proposed Development (i.e. do something, DS). The potential effects of the predicted change in noise levels will be assessed in accordance with the relevant policy requirements as described throughout this methodology section.
- 9.76 The significance of potentially adverse railway noise effects will be based on a combination of the predicted noise exposure at receptors and the difference between a future baseline year without the Development (Do Minimum), compared with the associated rail traffic with the Development (Do Something).

- 9.77 The noise exposure thresholds are set out in Table 9.9. These have been derived from the effects that railway noise can have on those affected¹⁸ and are expressed in terms of Government policy.

Table 9.9 Thresholds of potential effects of railway noise at residential buildings

Effect	Time Period	Threshold Value ($L_{Aeq, T}$) ^{a,b}
LOAEL	07.00 – 23.00	50
	23.00 – 07.00	40
SOAEL	07.00 – 23.00	65
	23.00 – 07.00	55
Notes: <i>a This is the average daily value at a position one metre from a residential building façade containing a window, ignoring the effect of an acoustic reflection from that façade.</i> <i>b For the night-time period of 23.00 – 07.00, the relevant noise indicator is L_{night}.</i>		

- 9.78 If the daytime LOAEL threshold value is exceeded, Table 9.10 outlines how the magnitude of the impact is described, taking into account both the change in daytime noise exposure and the resulting exposure.

Table 9.10 Descriptors of impact magnitude of daytime railway noise change

Magnitude of Impact	Resulting Do Something Exposure Level	
	Between LOAEL & SOAEL	SOAEL or greater
No Change	0	0
Negligible	Up to 2.9 dB(A)	Up to 0.9 dB(A)
Minor	3.0 – 4.9 dB(A)	1.0 – 2.9 dB(A)

¹⁸ The evidence for using some of these values can be found in guidance from the World Health Organisation. Similar values have been used for the assessment of other schemes such as HS2 and Northampton Gateway DCO.

Magnitude of Impact	Resulting Do Something Exposure Level	
	Between LOAEL & SOAEL	SOAEL or greater
Moderate	5.0 – 9.9 dB(A)	3.0 – 4.9 dB(A)
Major	10.0 dB(A) and over	5.0 dB(A) and over

9.79 If the night-time LOAEL threshold is exceeded, the data in Table 9.11 sets out how the magnitude of the impact is described taking account of the change in night-time noise exposure and the resulting exposure.

Table 9.11 Descriptors of magnitude of night-time railway noise change

Magnitude of Impact	Resulting Exposure	
	Between LOAEL & SOAEL	SOAEL or greater
No Change	0	0
Negligible	Up to 0.9 dB(A)	Up to 0.9 dB(A)
Minor	1.0 - 2.9 dB(A)	1.0 – 2.9 dB(A)
Moderate	3.0 – 4.9 dB(A)	3.0 – 4.9 dB(A)
Major	5.0 dB(A) and over	5.0 dB(A) and over

9.80 Whether or not a significant adverse effect is expected to occur will be determined through a two-stage process. Firstly, the predicted do something noise level (with the Proposed Development) will be compared to the LOAEL and SOAEL values shown in Table 9.9, to determine whether they are below the LOAEL, between the LOAEL and SOAEL or at or above the SOAEL. Secondly, the change in noise due to the Proposed Development will be considered (i.e. the difference between the do minimum and do something scenarios). Table 9.10 is then used to determine the extent of the impact. If the result for any property falls in the categories shown by the shaded boxes with text in bold, that indicates that the property is regarded as experiencing a significant adverse effect.

Noise from operational activity at the Main Site and the Western Rail Chord

9.81 Sound from operational activities taking place at the Main Site and the Western Rail Chord

has the potential to cause impacts at nearby receptors during the day and night-time period. Sound will be generated from the following sources:

- Rail movements inside the SRFI, i.e., freight train movements on the internal tracks.
- HGV movements inside the SRFI (both from the main highway network and between the rail terminal and the warehouses).
- Loading, unloading and manoeuvring activities associated with the rail terminal and the warehousing. This will include the use of gantry cranes, reach stackers and empty container handlers at the rail terminal.
- Mechanical services plant serving the warehousing.

9.82 Two different methods of prediction have been used depending on the type of source, all of which assume downwind propagation from the source to the receptor. These are:

- ISO 9613-2:2024 for all other sources, together with appropriate source data; and
- Calculation of Railway Noise (CRN) for freight trains travelling on the internal railway tracks.

9.83 The results from the various assessment methodologies have been processed to determine the impact during the peak hour of operations in the 16-hour daytime period (07:00 – 23:00) and the peak 15 minutes of operations in the 8-hour nighttime period (23:00 – 07:00). These are the assessment periods stated within BS 4142:2014+A1:2019¹⁹ and represent a worst-case situation.

9.84 Predictions have been based on the Proposed Development operating at full capacity with all warehousing in use, meaning that robust assumptions have been considered. The following information has been incorporated into the prediction model:

- the expected maximum level of HGV activity at the proposed warehousing and rail freight terminal, including travel on the internal access roads;
- the number and type of freight train movements, including arrival, departure and shunting manoeuvres;
- the expected activities at the rail terminal, including the likely durations that equipment will be operational during the assessment periods;
- the potential layout of the Proposed Development, as shown in the illustrative masterplan, including the size and heights of the proposed warehousing, which is considered to be a reasonable worst-case representation of the proposed scheme parameters; and
- the proposed topography for the site, including the inherent screening effects of

¹⁹ BS 4142:2014+A1:2019 *Methods for rating and assessing industrial and commercial sound*

bunding and landscaping, which is proposed to be fixed as a scheme parameter.

- 9.85 The assessment of the potential sound impacts from the operation of the Main Site has been based on the principles and guidance provided in BS 4142:2014+A1:2019. This methodology provides an initial estimate of impact based on the difference between the sound source being assessed (the specific sound level) and the existing background sound level at the receptor location, followed by consideration of the context in which the sound at the receptor occurs.
- 9.86 The standard also states that certain characteristics, if perceptible at the receptor location can increase the extent of the impact over that expected from a simple difference in noise levels. These characteristics include tonality, impulsivity and intermittency. The standard describes various options for taking any such features into account and for determining what is described in the standard as a rating level.
- 9.87 The standard states that the initial extent of the impact can be determined by subtracting the typical background sound level from the rating level. The greater the difference, the greater the magnitude of the initial impact estimate. The standard indicates that:
- a difference of around +10 dB²⁰ or more is likely to be an indication of a significant adverse impact, depending on the context;
 - a difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context;
 - where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context; and
 - the lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact.
- 9.88 While the difference between the rating level and background sound level provides an initial estimate of the impact, the standard indicates in Section 11 that other factors should be considered in terms of the context in which the sound occurs, such as:
- the resultant absolute noise level;
 - how the character and level of the specific sound source relates to the existing sound environment;
 - sensitivity of receptor; and
 - the façade insulation of the receptor, where relevant.
- 9.89 Regarding the consideration of the absolute levels of sound, the relevant guideline values

²⁰ BS 4142 states that: All the measurements and values used throughout this standard are “A”-weighted. Where “A” weighting is not explicit in the descriptor, it is to be assumed in all cases, except where it is clearly stated that it is not applicable, as in the case of tones.

provided in BS 8233:2014²¹ have been referenced. Table 4 of the standard sets out desirable internal levels to be achieved in new dwellings from external sources. This would take into consideration the façade sound insulation of the dwelling, usually in terms of the propagation through a partially open window. If the façade of the property had been mitigated against external noise and had alternative form of ventilation installed, the enhanced insulation of the façade would be taken into consideration. The table also provides information regarding desirable levels of sound for external amenity spaces associated with dwellings. The various values from BS 8233:2014 are summarised in Table 9.12 below.

Table 9.12 Summary of guideline sound levels from BS 8233:2014

Location (activity)	Time Period	Desirable Sound Level not to be exceeded
Inside Bedrooms and Living Rooms (resting)	Day (07:00 – 23:00)	35 - 40 dB $L_{Aeq, T}$
Inside Bedrooms (sleeping)	Night (23:00 – 07:00)	30 - 35 dB $L_{Aeq, T}$
Inside Dining Room/area (dining)	Day (07:00 – 23:00)	40 - 45 dB $L_{Aeq, T}$
External Amenity Space	Day (07:00 – 23:00)	50 - 55 dB $L_{Aeq, T}$

9.90 The lower values shown in the range of sound levels in Table 9.12 above are generally regarded as the LOAEL for steady external sound, i.e., no adverse effect due to the impact of the sound would be expected below these values. If the sound has certain characteristics, it could be appropriate to consider a lower value as the LOAEL. Alternatively, a correction for those characteristics would be applied to the predicted levels. The latter approach is followed in this assessment, with the rating levels (including any appropriate corrections for the acoustic character of the noise present at the receptor location) serving as the basis for assessing the absolute noise levels.

9.91 Applying the principles outlined above, there are three operational assessment scenarios to consider:

- Night-time Internal – During the night-time period, people will generally be in their bedrooms sleeping and therefore it is the absolute level internally at night which is most relevant to consider rather than the change in the external noise level. Therefore, the initial estimate of the impact is amended by the context of the expected internal noise levels in bedrooms. The internal noise level is derived by assuming a 15 dB reduction on the external façade level through a partially open window.

²¹ BS 8233:2014: *Guidance on sound insulation and noise reduction for buildings*, BSI (2014)

- Daytime Internal – With regard to internal noise levels during the daytime, the same approach can be taken as at night, i.e., it is the internal level which is most important rather than the change in the external noise level. So, the initial estimate of impact is amended by the context of the internal noise levels.
- Daytime External – For external noise levels in amenity spaces such as gardens, the initial estimate of impact would be determined by the change in noise level, however consideration of the absolute level will determine the extent to which the sound would be present and whether it is intrusive.

9.92 To determine the initial estimate of the external impact based on the change from the background sound level, the criteria in Table 9.13 below are used. This is based on the guidance within BS 4142:2014+A1:2019. It is noted that BS 4142:2014+A1:2019 does not specify a level of change that equates to an unacceptable adverse impact.

Table 9.13 Magnitude of Impact based on change from background sound level

Excess of Rating Level vs Background	Magnitude of Impact	Initial Effect
< background	No impact	No Observed Effect i.e. below LOAEL
0 to +4	Low impact	No Observed Adverse Effect
+5 to +9	Adverse impact	Observed Adverse Effect (at or above LOAEL but below SOAEL)
+10 and above	Significant adverse impact	Observed Significant Adverse Effect (at or above SOAEL)

9.93 In terms of modifying the initial estimate of the night-time impact, by considering the absolute level of noise internally, the magnitude of impact has been determined according to the criteria set out in Table 9.14 below. These criteria are based on the guidance in BS 8223:2014 regarding desirable internal ambient noise levels. Above the level considered reasonable in the standard, an adverse impact is identified.

Table 9.14 Magnitude of impact based on internal rating level during the night-time

Internal Rating Level ($L_{Aeq,15\text{ min}}$ dB)	Magnitude of Impact	Effect Level
Equal to or below 30	No Adverse Impact	No Observed Effect

Internal Rating Level ($L_{Aeq,15 \text{ min}}$ dB)	Magnitude of Impact	Effect Level
		i.e. below LOAEL
31 to 35	Possible Adverse Impact	No Observed Adverse Effect
36 – 40	Adverse Impact	Observed Adverse Effect (at or above LOAEL but below SOAEL)
≥41	Significant Adverse Impact	Observed Significant Adverse Effect (at or above SOAEL)

9.94 In terms of considering the absolute level of noise internally during the day, the magnitude of impact has been determined according to the criteria set out in Table 9.15 below. These criteria are based on the guidance in BS 8223:2014 regarding desirable internal ambient noise levels. Above the level considered reasonable in the standard, an adverse impact is identified.

Table 9.15 Magnitude of impact based on internal rating level during the daytime

Internal Rating Level ($L_{Aeq,1 \text{ hour}}$ dB)	Magnitude of Impact	Effect Level
Equal to or below 35	No Adverse Impact Likely	No Observed Effect i.e. below LOAEL
36 - 39	Possible Adverse Impact	No Observed Adverse Effect
40 -	Adverse	Observed Adverse Effect

Internal Rating Level ($L_{Aeq,1}$ hour dB)	Magnitude of Impact	Effect Level
45	Impact	(at or above LOAEL but below SOAEL)
≥ 46	Significant Adverse	Observed Significant Adverse Effect (at or above SOAEL)

9.95 In terms of the absolute level of noise externally in amenity spaces during the day, the magnitude of impact has been determined according to the potential change to background level then against the criteria set out in Table 9.16 below. These criteria are based on the guidance in BS 8223:2014 regarding desirable external noise levels in amenity spaces. Above the level considered reasonable in the standard, an adverse impact is identified.

Table 9.16 Magnitude of impact based on external rating level during the daytime

External Rating Level ($L_{Aeq,1}$ hour dB)	Magnitude of Impact	Effect Level
Equal to or below 50	No Adverse Impact Likely	No Observed Effect i.e. below LOAEL
51 – 54	Possible Adverse Impact	No Observed Adverse Effect
55 – 65	Adverse Impact	Observed Adverse Effect (at or above LOAEL but below SOAEL)
≥ 66	Significant Adverse	Observed Significant Adverse Effect (at or above SOAEL)

Impact of maximum sound levels

9.96 The World Health Organisation's Guidelines for Community Noise²² have been used to consider the potential impact of any maximum short-term noise levels from operations at the Main Site during the night-time period.

9.97 The guidelines state that, for good sleep, indoor sound pressure levels should not exceed around 45 dB L_{AFmax} more than 10–15 times per night. This is equated to a level at the outside

²² Guidelines for Community Noise, WHO (1999)

façade of 60 dB L_{AFmax} with a partially open window. It is generally accepted that this criterion is a LOAEL.

Operational sound from fixed mechanical plant and equipment

- 9.98 It is anticipated that there will be fixed plant associated with the Proposed Development, such as that used for ventilation, cooling and heating of buildings. However, prior to the occupants of the buildings and their requirements being known, information regarding the type, number, or location of the fixed plant units is not available; therefore, any noise that may result from their operation cannot be assessed.
- 9.99 Therefore, appropriate target noise rating levels for fixed plant have been defined at the receptor locations based on the methodology described in BS 4142:2014+A1:2019 for both day and night periods, with reference to the measured typical background sound levels and the predicted noise levels from on-site operational activities. These would also apply to substations.
- 9.100 It is proposed that prior to installation, details of the mechanical plant will be submitted to the relevant planning authority for approval. As part of this process, the sound from the proposed plant installations will be assessed in accordance with the principles of BS 4142:2014+A1:2019, in relation to the identified targets, and, if necessary, mitigated to demonstrate compliance with Government and local policies.
- 9.101 Items of plant will be selected and located to minimise any noise that may result from their operation at the receptor locations as far as reasonably practicable and, if necessary, mitigated to avoid potentially significant effects occurring.

Operational railway vibration

- 9.102 A proportionate and appropriate assessment can be carried out by evaluating the potential change in vibration from freight trains up to the point where the freight trains serving the Proposed Development join the West Coast Mainline to the west, via the Chat Moss line and the line between Earlestown East and Winwick junctions, which has a total length of approximately 4.6 km. A similar length to the east of the Proposed Development along the Chat Moss line will also be considered, as well as the section of line between Newton-le-Willows and Golborne junctions to the north, and around 2.4 km of the Chat Moss line as it continues to the west of Earlestown East Junction. An assessment will be made for any receptors within a lateral distance of 100 m from the track using the measurements from the baseline survey and factoring them in accordance with the increased number of freight trains.
- 9.103 Although the concepts regarding LOAEL and SOAEL in Government policy refer only to noise exposure, it is helpful to adopt the same principles when assessing the impact and effect of vibration. Table 9.17 presents the railway vibration exposure thresholds, along with the descriptors for the magnitude of impact. These have been derived from the guidance in BS 6472:2008²³.

²³ *British Standard 6472: 2008 Guide to evaluation of human exposure to vibration in buildings Part 1: Vibration sources other than blasting, BSi*

Table 9.17 Thresholds of potential effects of railway vibration on residential buildings - $\text{m/s}^{1.7}$

Effect	Impact Description	Vibration Exposure	
		VDV Daytime ($\text{m/s}^{1.75}$)	VDV Night-time ($\text{m/s}^{1.75}$)
-	Negligible	< 0.2	< 0.1
LOAEL	Minor	0.2	0.1
-	Moderate	0.21 – 0.79	0.11 – 0.39
SOAEL	Major	0.8	0.4
Notes: <i>a Usually determined in the centre of a normally loaded floor within the dwelling.</i>			

Receptors

- 9.104 Sensitive receptors typically represent locations where human beings or other sensitive elements, such as wildlife, may be affected by noise and/or vibration from the construction and/or operation of the ILPN SRFI.
- 9.105 The receptors selected for this assessment comprise a sample of those closest to the relevant sources of noise or vibration. Their proximity means that, in general, impacts at other locations that are further from the respective sources of noise and/or vibration would be no greater, and in most cases lower than those that have been assessed. Therefore, the assessment presents a worst-case.
- 9.106 The sensitivity of a receptor is a function of both its use and the type of noise or vibration being considered (e.g., construction noise, road traffic noise etc). This means that there are different thresholds of noise and/or vibration exposure that can indicate adverse or significant adverse effects depending on the type of receptor and type of noise source.
- 9.107 To identify the relevant sensitive receptors for the assessments, a review was undertaken of the area surrounding the ILPN SRFI. Most of the noise and vibration sources associated with the development are located within the development site and therefore the relevant receptors are around these areas. However, increases in road and rail traffic noise may affect receptors further from the ILPN SRFI.
- 9.108 The sensitive receptors selected for these assessments are listed in Table 9.18, which indicates

their location, use, the relevant component/s of the ILPN SRFI they are associated with (e.g., whether they are primarily exposed to the ILPN SRFI etc), and what type of noise and/or vibration source has been considered.

9.109 The receptors are primarily private dwellings, including a number of Farms.

Table 9.18 Indicative list of residential receptors to be assessed and sources of noise that might affect them.

Receptor		Construction	Traffic	Mainline Rail	Main Site Operational Noise
R01	Highfield Farm	✓	✓	✓	✓
R02	465 Newton Rd	✓	✓	✓	✓
R03-S	The Orchard Parkside Road	✓	✓	✓	✓
R03-E	The Orchard Parkside Road	✓	✓	✓	✓
R04	Rosemary Drive	✓	✓	✓	✓
R05	Banastre Drive	✓	✓	✓	✓
R06	12 Whitefield Ave	✓	✓	✓	✓
R07	59 Winwick Rd	✓	✓	x	✓
R08	Monk House Parkside Rd	✓	✓	x	✓
R09	The Cottage Parkside Rd	✓	✓	x	✓
R10	Hermitage Green	✓	✓	x	✓

	Receptor	Construction	Traffic	Mainline Rail	Main Site Operational Noise
R11	Hilbre Winwick Road	✓	✓	x	✓
R12	Hill Crest Winwick	✓	✓	x	✓
R13	Hollow Dene Crest Winwick Road	✓	✓	x	✓
R14	Sherbrooke Crest Winwick Road	✓	✓	x	✓
R15	Over Back Farm Crest Winwick Road	✓	✓	x	✓
R16	Over Back Cottage Crest Winwick Road	✓	✓	x	✓
R17-S	Kenyon Hall Farm Winwick Lane	✓	✓	x	✓
R17-W	Kenyon Hall Farm Winwick Lane	✓	✓	x	✓
R18	Sandy Brow Lane	✓	✓	x	✓
R19	The Lodge Sandy Brow Lane	✓	✓	x	✓
R20-S	Carringtons Coffee Co Winwick Lane - South	✓	✓	x	✓
R20-W	Carringtons Coffee Co Winwick Lane - West	✓	✓	x	✓

	Receptor	Construction	Traffic	Mainline Rail	Main Site Operational Noise
R21	Kenyon Hall Farm Winwick Lane – South	✓	✓	✗	✓
R22	Kenyon Hall Farm Winwick Lane- North	✓	✓	✗	✓
R23	Morris's Farm Main Lane	✓	✓	✗	✓
R24	10 Main Lane	✓	✓	✗	✓
R25	Home Main Lane	✓	✓	✗	✗
R26	High Peak Residential & Nursing Home Main Lane	✓	✓	✗	✗
R27	49 Kenyon Lane	✗	✓	✓	✗
R28	345 Newton Road	✗	✓	✗	✓
Numbering may not be consecutive as receptors may have been scoped in and out of the assessment as the scheme has evolved.					

9.110 Regarding the predictions of noise at the relevant receptor locations, a height of 1.5 m above ground level has been used to represent ground (or ground floor) level and used for the daytime assessment period, with 4.5 m used to represent first-floor bedroom windows for the night-time assessment period. Where properties are single storey, a receptor height of 1.5m has been used for both the day and night-time assessment period.

Assumptions and Limitations

9.111 The following assumptions are relevant to the noise and vibration assessment:

- The construction methods and equipment likely to be used have been estimated based

on the experience of other similar developments and information specific to this scheme, which has been confirmed by the project team. These assumptions are documented in the assessment.

- Several assumptions have been made in terms of the types, locations and intensity of operational activities at the Main Site (both at the associated warehousing and the SRFI). These assumptions have been made in combination with the rail consultant and traffic consultant and are documented within the assessment and accompanying appendices.
- Regarding noise from the mechanical services plant associated with the warehousing, as the details of this plant will not be available at the time of assessment, target levels will be set according to the levels measured during the baseline noise surveys and other operational sounds from the site.
- The bunding around the proposed development will be considered as embedded mitigation and factored into the noise assessment.
- A noise barrier between the rail chord and western receptors will also be considered as embedded mitigation and factored into the noise assessment.

9.112 The following limitations will apply to the assessment:

- It is impractical to predict the potential noise impact and effects from the various elements of the Proposed Development at every nearby noise-sensitive property. Instead, as is common practice, representative receptors have been carefully selected based on their location relative to the different sources of noise within the development and their location with respect to other noise-sensitive properties nearby.
- It is also impractical to measure the existing noise and vibration environment at every receptor location. Therefore, representative noise and vibration monitoring positions have been identified and agreed with officers from St Helens Borough Council, Warrington Borough Council and Wigan Metropolitan Borough Council. Consequently, the results at a particular monitoring location have been used to represent the existing noise environment for a cluster of receptors which broadly experience the same exposure as the corresponding monitoring location.
- The baseline noise surveys were undertaken for a period of time considered suitable to determine the typical sound levels at the monitoring locations, as it is not proportionate to monitor continuously at the identified locations.

BASELINE CONDITIONS

Current Baseline

Noise

9.113 To quantify and characterise the existing baseline sound environment around the Proposed Development site, a baseline noise survey was conducted between 9th September and 8th

October 2024.

- 9.114 The survey was conducted following the principles set out in BS 7445-2:1991 and BS 4142:2014+A1:2019. It comprised 12 static noise monitoring locations, which were left unattended for the duration of the monitoring (positions denoted with 'LT' for long-term) and 6 locations where attended short-term measurements were undertaken (positions denoted with 'ST' for short-term). The locations were selected to be representative of existing noise-sensitive receivers around the proposed development site.
- 9.115 All long-term and short-term measurements were undertaken in the acoustic free-field and at heights between 1.5 to 2.0 m above ground level.
- 9.116 A summary presenting the measurement periods and observations on the baseline sound environment at each measurement location is given in Table 9.19 for unattended measurement locations and in Table 9.20 for attended measurement locations.

Table 9.19 Unattended survey locations, dates and main observations

Unattended Survey Location	Survey Dates		Main Observations
	Start	End	
LT1 Tritax Land	10/09/2024	24/09/2024	Continuous, distant road traffic noise from M6. Intermittent road traffic noise from Parkside Road. Occasional rail passing from adjacent line. Wind in trees.
LT2 471 Newton Road	09/09/2024	23/09/2024	Occasional road traffic noise from Newton Road. Distant M6 audible in between traffic. Wind in trees.
LT3 387 Newton Road	09/09/2024	22/09/2024	Occasional road traffic noise from Newton Road. Flagpole occasionally whipping in very high wind. Wind in trees.
LT4 345 Newton Road	11/09/2024	23/09/2024	Road traffic noise from Newton Road, Winwick Lane. Wind in trees.
LT5 Main Lane Farm	09/09/2024	17/09/2024	Dominated by near-continuous road traffic noise from Winwick Lane. Wind in trees.
	24/09/2024	08/10/2024	

Unattended Survey Location	Survey Dates		Main Observations
	Start	End	
LT6 Oven Back Farm	09/09/2024	24/09/2024	Dominated by continuous road traffic noise along Winwick Lane. Wind in trees.
LT7 Bibby Commercial	10/09/2024	24/09/2024	Dominated by road traffic noise from Winwick Lane and adjacent roundabout. Occasional HGV alarms/movements in works yard. Earthworks in development site. Wind in trees.
LT8 High Field Farm	10/09/2024	11/09/2024	Distant, continuous road traffic noise from M6. Occasional road traffic noise from vehicle passes along Waterworks Lane. Wind in trees.
LT9 Woodhead Farm	10/09/2024	24/09/2024	Near-continuous road traffic noise from Parkside Road. Continuous, distant road traffic noise from M6. Wind in trees.
LT10 59 Winwick Road	09/09/2024	24/09/2024	Dominated by road traffic noise from Winwick Road. Vehicles waiting in long queues at temporary traffic lights. Occasional rail passing. Wind in trees.
LT11 48 Banastre Drive	09/09/2024	22/09/2024	Distant, continuous road traffic noise from M6. Occasional rail pass. Wind in trees.
LT12 56 Rosemary Drive	09/09/2024	24/09/2024	Distant, continuous road traffic noise from M6. Occasional rail pass (two rail lines adjacent). Wind in trees.
Notes <i>LT5 suffered power failure on 17/09/2024 and was therefore redeployed on 24/09/2024</i> <i>LT8 suffered power failure on 11/09/2024 and was not redeployed due to prevent vandalism of equipment.</i>			

Table 9.20 Attended survey locations, dates and main observations

Attended Survey Location	Survey Dates		Main Observations
	Date	Start/End Time	
ST1 Southworth Road	16/09/2024	11:00 – 11:45	Frequent traffic on A572 including HGV – M6 traffic dominant in between. Some intermittent drilling at residential property.
	18/09/2024	00:00 – 00:45	Some train passes including freight.
ST2 Parkside Road	16/09/2024	12:00 – 12:45	No trains observed. Regular car passes – few HGV.
	18/09/2024	01:00 – 01:45	Low level, distant road traffic noise.
ST3 Winwick Lane	16/09/2024	13:15 – 14:00	Frequent traffic on Winwick Road. Farm activity including an excavator audible. Road traffic noise dominant including tractor pass-bys.
	18/09/2024	02:00 – 02:45	Many fast-moving vehicle passes including HGV.
ST4 Sandy Brow Lane	16/09/2024	14:15 – 15:00	Quiet with some road traffic noise including a horsebox and HGV passing. Birdsong.
	18/09/2024	03:00 – 03:45	Very quiet. One vehicle pass.
ST5 Golborne Road	16/09/2024	15:15 – 16:00	Frequent cars passing. Not many HGVs. Bird song audible in long gaps.
	19/09/2024	00:00 – 00:45	Distant motorway traffic noise. One HGV pass and occasional local traffic/aircraft overhead.

Attended Survey Location	Survey Dates		Main Observations
	Date	Start/End Time	
ST6 Hermitage Green	16/09/2024	16:15 – 17:00	Very Quiet location – cars passing infrequently. People noise from passing e-scooters / e-bikes on 2x occasions.
	19/09/2024	01:00 – 01:45	Distant road traffic noise audible. Light wind in trees.

- 9.117 A field calibration was undertaken prior to and following each set of measurements for both unattended long-term and attended short-term measurements, with no significant drift in calibration identified at any location. All sound level meters (SLMs) and field calibrators deployed across the survey were Class 1 approved. All SLMs were laboratory calibrated within 2 years prior to deployment, and all field calibrators within 1 year prior to deployment.
- 9.118 Noise baseline survey data is presented in Appendix 9.5. Time history graphs are presented for unattended long-term locations, and summary tables exhibiting measured noise levels are presented for attended short-term locations.
- 9.119 A weather station was deployed adjacent to the noise survey location LT1 in order to log precipitation rate, wind speed and wind direction data between 10/09/2024 and 08/10/2024.

Noise – Characterisation of background sound levels

- 9.120 The assessment of potential impacts from operational activities at the Proposed Development is based on BS 4142:2014, which requires the determination of the background sound level ($L_{A90,T}$).
- 9.121 BS 4142:2014 states the importance of the reliability of background sound levels used for the assessment and that they represent the circumstances and periods of interest. The objective of the assessment is to quantify what is typical during the periods where the noise sources are operational, rather than determining the lowest surveyed background sound level.
- 9.122 To characterise the baseline sound environment, the noise survey and weather data were reviewed, and any measured sound levels coinciding with periods of high wind speeds and/or precipitation were excluded from the dataset.
- 9.123 Wind direction can have a significant effect on measured sound levels. This effect can be particularly apparent when the background noise levels are affected by a dominant, static and steady source, such as road traffic noise on the M6. The effect is typically greater as the distance between the source and the receiver increases. Noise levels generally increase downwind from a source and increase upwind from a source, although the effect is not symmetrical; i.e. decreases in level due to upwind conditions are usually greater than

increases in level due to downwind conditions.

- 9.124 The effect of different wind conditions will affect some noise indices used to describe the noise environment more than others. At locations which experience distant road traffic noise from the M6, the background sound level ($L_{A90,T}$), a measure indicating the constant underlying level of noise in the environment, may vary significantly depending on wind direction. However, suppose there is local road traffic or railway noise at the same location. In that case, it is these sources that will dominate the ambient noise level ($L_{Aeq,T}$). Additionally, as local noise sources are typically closer to receivers, the results will generally exhibit less variation with wind direction.
- 9.125 Because of the influence of the wind direction on the measured sound levels in the area around the proposed development, the results of the baseline survey have been divided into two distinct datasets based on the wind direction at the time of measurement, as follows:
- Broadly westerly winds (i.e. sound levels measured when the wind direction was from the north northwest, northwest, west northwest, west, west southwest, southwest, south southwest and the south).
 - Broadly easterly winds (i.e. sound levels measured when the wind direction was from the north, north northeast, northeast, east northeast, east, east southeast, southeast and south southeast).
- 9.126 For measurement periods where wind direction data were missing or unavailable within the dataset, wind direction values from adjacent time periods were applied. This approach was validated using publicly accessible historical meteorological records.
- 9.127 For monitoring positions located to the east of the M6, broadly westerly winds (i.e. blowing from the west) will result in higher background sound levels due to the motorway noise, while broadly easterly winds (i.e. blowing from the east) will generally produce lower background sound levels from the motorway noise.
- 9.128 Similarly, for monitoring positions located to the west of the M6, broadly easterly winds will result in higher background sound levels due to motorway noise, while broadly westerly winds will generally produce lower background sound levels from the motorway.
- 9.129 After filtering the measurement data according to wind direction, the frequency of occurrence of the measured background sound levels (rounded to the nearest integer) was examined through analysis of the statistical distribution of the data. The modal value, i.e., the most frequently occurring value, was identified for both daytime and night-time periods at each monitoring location.
- 9.130 Based on this analysis, the indicative background sound levels ($L_{A90,15min}$) for each location have been identified for both the daytime (07:00 – 23:00) and night-time (23:00 – 07:00) periods, under both westerly and easterly wind scenarios. These values are presented in Appendix 9.5, alongside the representative monitoring position for each receptor. The notes identify whether there were any required adjustments to the measured levels at the monitoring location in order to represent the relevant receptor locations or to account for specific characteristics in the measurement data (such as a wide distribution of background

levels). Some of this analysis is still ongoing and therefore these indicative background sound levels may be refined in the ES.

Vibration

- 9.131 A vibration survey was undertaken in order to characterise and quantify the existing baseline vibration environment in the areas surrounding the Proposed Development site. This survey commenced on 23rd September 2024 and ended on 26th September 2024, and followed the principles of BS 6472-1:2008 at the closest receptors to the existing rail lines to determine the existing levels of vibration resulting from passing passenger and freight trains at the receptor locations.
- 9.132 The Chat Moss railway line runs east to west along the northern boundary of the Proposed Development site, and the West Coast Mainline runs north to south along the western boundary of the proposed development site.
- 9.133 Receptors near the railway lines adjacent to the Proposed Development site are already exposed to frequent passenger train passes and occasional freight train passes. To characterise and quantify the existing levels of vibration resulting from passenger and freight trains using the lines, Vibration Dose Value (VDV) measurements of train passes were undertaken at 6 locations intended to represent the closest receptors to each line appropriately.
- 9.134 A summary presenting the measurement periods at each vibration measurement location is given in Table 9.21. All measurement locations and vibration data for the identified train passes are presented in Appendix 9.5.

Table 9.21 Vibration survey locations and dates

Vibration Survey Location	Survey Dates/Times			Notes
	Start	End	Duration	
V1 Tritax Land	25/09/2024 11:47	26/09/2024 09:42	21h 55m	Intended to represent properties on Parkside Road
V2 Tritax Land	25/09/2024 12:21	26/09/2024 09:49	21h 28m	Intended to represent properties on Parkside Road
V3 47 Banastre Drive	24/09/2024 16:55	25/09/2024 11:23	18h 28m	Represent properties along the rail corridor on Banastre Drive

Vibration Survey Location	Survey Dates/Times			Notes
	Start	End	Duration	
V4 56 Rosemary Drive	23/09/2024 16:41	24/09/2024 14:20	21h 39m	Represent properties along the rail corridor on Rosemary Drive
V5 578 Newton Road	24/09/2024 16:28	25/09/2024 10:41	18h 13m	Represent properties along the rail corridor on Newton Road and Golborne Dale Road
V6 71 Banastre Drive	23/09/2024 16:56	24/09/2024 14:10	21h 14m	Represent properties along the rail corridor on Banastre Drive

- 9.135 Vibration measurements were carried out following the principles of BS 6472-1:2008. A triaxial accelerometer was attached to a mounting plate conforming to German standard DIN 45669-2:2005-06. At locations V1 and V2, the mounting plate was placed in the ground with spikes penetrating the earth in the absence of any accessible solid ground. At locations V2, V3, V4, V5 and V6, the mounting plate was placed on a concrete slab/paving in the grounds of the associated property, as close to the railway line as practicable. All positions, including V1 and V2 which were employed as proxy positions intended to represent the dwellings on A573 Parkside Road, were considered representative of the ground-based vibration experienced at the properties.
- 9.136 In-person observations of passenger and freight train passes were made, where possible, based on the timetable at a particular location. Supplementary train movement information was gathered for all locations across the respective measurement periods from online repositories which make use of open data feeds from Network Rail. This dataset includes information on the times of train passes through a particular junction, direction, the type of train (passenger or freight), locomotive type, and the number of cars. This information was then analysed alongside the measured dataset to correlate and identify train passes within the vibration data.
- 9.137 The number of measured train passes, along with the average and maximum VDV levels, is summarised in Table 9.22, which includes data on train type, car number, and direction (where available) at all locations.

Table 9.22 Vibration survey summary

Location	Type	Measured Vibration Dose Value (VDV, Z Axis values) - $m/s^{1.75}$					
		No. of Samples	North/East bound		No. of Samples	South/West bound	
			Avg	Max		Avg	Max
V1	Passenger	2	0.007	0.007	1	0.009	0.009
	Freight	0	-	-	2	0.029	0.041
V2	Passenger	3	0.019	0.034	3	0.018	0.034
	Freight	1	0.027	0.027	3	0.036	0.045
V3	Passenger	3	0.022	0.028	3	0.017	0.022
	Freight	0	-	-	4	0.059	0.079
V4	Passenger	3	0.029	0.031	3	0.014	0.018
	Freight	3	0.013	0.015	3	0.017	0.023
V5	Passenger	3	0.009	0.010	3	0.012	0.017
	Freight	1	0.023	0.023	2	0.026	0.034
V6	Passenger	3	0.022	0.027	3	0.012	0.024
	Freight	3	0.013	0.016	3	0.023	0.026

Future Baseline

9.138 In the absence of the Proposed Development, the future noise and vibration environment is likely to continue to be governed by changes in the current dominant sources of noise and vibration at the sensitive receptors, i.e., road and rail traffic.

9.139 With regard to rail traffic, the likely future changes in rail traffic have been taken into account in the future baseline assessment year forecasts in terms of both noise and vibration.

EMBEDDED MITIGATION MEASURES

9.140 The design of the Main Site has been developed through an iterative process, which has sought to maximise the noise mitigation provided by the inherent design of the scheme. This has included:

- Where practicable the orientation of buildings within the DCO to provide shielding from on-site activities. For example, locating loading bays away from residential receptors to ensure no line of sight.
- Provision of bunding around the boundary of the site, particularly along the south east boundary line along Winwick Lane. The bunding has a relative height of 3 metres and a top width of 2 metres.
- Placement of a 3.5 m high acoustic barrier between the Western Rail Chord and noise-sensitive receivers located to the west of the development site

9.141 Consideration will also been given to the noise generating equipment employed at the site. The embedded mitigation for this element of the Proposed Development will be confirmed in the ES.

POTENTIAL EFFECTS PRIOR TO ADDITIONAL MITIGATION

Construction Phase

Noise from construction activities

9.142 At this stage of assessment, the potential significance of construction noise associated with the ILPN SRFI has been assessed based on the loudest construction phase, which is on-site infrastructure earthworks. This phase is up to 3 dB higher compared to other phases of construction and activity occurs close to the order limits, hence having shorter distances to the identified receptors compared to the construction of the warehouses.

9.143 The predicted noise levels associated with these activities at the relevant receptors, along with the subsequent assessment, are presented in Appendix 9.3.

9.144 Calculations show that the predicted construction noise levels do not exceed the SOAEL, and therefore, no significant effects are expected from construction activities associated with the ILPN SRFI. There are some exceedances of the LOAEL, indicating that some short-term, temporary adverse effects may occur at the relevant receptors.

9.145 Considering the predicted construction noise levels for the individual works packages for core hours as a worst-case, if the works packages taking place in locations close to sensitive receptors were to take place out of hours or during the night, then depending on the exact

works being undertaken (which may be limited compared to core hours working) and what time they took place, then it is possible that both the relevant LOAEL and SOAEL thresholds could be exceeded. Nevertheless, the duration of any such works (in terms of the number of days they may take place at the same location) is expected to be limited. Therefore, it is considered that while short-term temporary adverse effects may occur in such situations, they are unlikely to be significant. Full details of such works will be provided in the oCEMP as an additional mitigation measure.

Noise from construction traffic

- 9.146 Further work is ongoing to assess the impact of noise generated by construction traffic on local roads/highways network. Modelling will be undertaken once relevant data becomes available.

Vibration from construction activities

- 9.147 As discussed in the Scope and Methodology of the Assessment section above, the potential significance of construction vibration has been considered in two ways: in terms of potential damage to buildings and other structures, as well as potential human perception/disturbance to vibration. Following a review of the construction plant to be used (see Appendix 9.3), the use of vibratory compaction was identified as the only activity where potentially significant levels of vibration might be generated at receptors.
- 9.148 The predicted vibration levels for both types of vibratory compaction (the vibratory roller types are different) in terms of both PPV (for potential damage) and VDV (for disturbance) at the closest receptors are presented in Appendix 9.3.
- 9.149 The predicted levels of vibration using the PPV metric are well below the conservative threshold of 3 mm/s selected to indicate the onset of potential damage. Based on this, no significant effects are expected in terms of potential damage resulting from construction vibration.
- 9.150 With respect to disturbance, the predicted VDV level is above the day period LOAEL but below the SOAEL and therefore no significant effects are expected as a result, though some short-term temporary adverse effects may occur at the relevant receptors when vibratory compaction is taking place at the closest point to them.
- 9.151 As previously stated, it is likely that some works will need to take place outside of the day period hours due to highway constraints; however, due to the level of detail required, it is not possible to make predictions of the likely effects at this time. Considering the predicted construction vibration levels as a worst-case, if the works packages taking place in locations close to sensitive receptors were to take place out of hours or during the night, then depending on the exact works being undertaken (which may be limited compared to core hours working) and what time they took place, then it is possible that the relevant LOAEL threshold for vibration could be exceeded. On this basis, no significant effects are predicted, though some short-term temporary adverse effects may occur in such situations. Full details of such works will be provided in the oCEMP.

Operational Phase

Main Site and Western Rail Chord

- 9.152 As discussed in the Scope and Methodology of the Assessment section above, an indicative assessment has been undertaken of the potential effects of operational noise from activity at the Main Site and Western Rail Chord. This has considered the effects during the day and night-time assessment periods under both broadly easterly and broadly westerly wind directions. The results are presented in Tables 9.12, 9.13, 9.14 and 9.15 of Appendix 9.4. The corresponding effect level based on the change from the background sound level is shown in the tables (in accordance with the criteria in Table 9.13 above).
- 9.153 The results (Tables 9.12, 9.13, 9.14 and 9.15 of Appendix 9.4 show that the predicted operational noise levels do not exceed the “SOAEL”, and therefore, no significant effects are expected.
- 9.154 The Main Site and Western Rail Chord embedded mitigation provides sufficient attenuation to reduce significant adverse impacts from operational activity. In summary:
- The earth bund provides acoustic screening for properties along Winwick Lane, reducing activity noise impacts such as HGV movements, rail port activities and warehousing activities by up to 4 dB at the most affected receptors (R20, R21 & R23).
 - The 3.5 m high acoustic barrier along the Western Rail Chord provides screening from rail activities at receptors on Banastre Drive, reducing noise levels by up to 14 dB at R5.

Noise from fixed plant

- 9.155 Target noise rating levels for fixed plant and substations at all relevant receptors are presented in Appendix 9.4. The values represent cumulative rating levels, i.e., they represent the combined noise level produced by all fixed plant associated with the ILPN SRFI, including any corrections for acoustic features as required.
- 9.156 The target noise level has been defined as equal to the typical background sound level at each receptor (i.e., the underlying level of sound that is exceeded for 90% of the time), which, according to BS 4142:2014+A1:2019, is an indication of a low (non-adverse) impact. Note that these are not proposed noise limits, and some exceedances of these values would still meet the requirements of the noise policy, especially when context is considered.
- 9.157 It is proposed that prior to the installation of any noise generating fixed plant, details of the installation for each building will be submitted to the local planning authority for approval as part of the discharge of requirements process. As part of this process, sound from the proposed fixed plant installations will be predicted and fully assessed using the BS 4142:2014+A1:2019 methodology with respect to the target noise rating levels.

Operational Road Traffic Noise

- 9.158 Further work is ongoing to assess the impact of noise generated by operational traffic on local roads/highways network. Modelling will be undertaken once relevant data becomes

available.

Operational Railway Traffic Noise

9.159 Further work is ongoing to assess the impact of noise generated by operational railway traffic on relevant sections of track. Modelling will be undertaken once relevant data becomes available. This will be included within the ES and will be subject to further targeted consultation in Q1 2026.

Remote Highway Works

9.160 At the PEIR stage, an overview of potential highways and infrastructure options currently under consideration is provided in Appendix 7.2. The finalised highways mitigation approach will be considered in the noise and vibration ES chapter and will be the subject of further targeted consultation in Q1 2026.

PROPOSED ADDITIONAL MITIGATION MEASURES

Construction Phase

9.161 As described in the previous section, no significant effects due to construction noise or vibration associated with the ILPN SRFI have been predicted.

9.162 Nevertheless, some short-term, temporary adverse effects are expected during the potential out-of-hours and night periods. Both the NPSNN and the NPPF state that new development should mitigate and reduce to a minimum potential adverse impacts resulting from noise (and vibration).

9.163 To facilitate the management of construction noise and vibration in general, good working practices during the construction of the Proposed Development are defined through an outline Construction Environmental Management Plan (oCEMP). The specific noise and vibration controls included in the oCEMP, which will be confirmed when a detailed approach to the works has been finalised, will follow the principle of Best Practicable Means (BPM), and are expected to include the following measures where appropriate:

- phasing of earthworks to prioritise the construction of any bunding to provide screening of the subsequent works where practicable;
- selection of appropriate equipment and construction methods, e.g., hydraulic plant will be used in preference to pneumatic plant, and electrically powered rather than internal combustion engine powered, where practical and feasible;
- plant and equipment will be maintained in good working order and fitted with silencers and acoustic panels where appropriate;
- all plant will be switched off when not in use or throttled down between periods of use;
- acoustic enclosures and temporary hoardings/screens around works will be used where

required;

- noisy works will take place during agreed site hours, and there will be appropriate management of working hours for noisier tasks;
- 'white noise' type reversing warnings should be used on mobile plant in preference to 'bleepers' to minimise intrusion;
- site personnel will be instructed on BPM to reduce noise and vibration as part of their site induction training and as required prior to specific work activities;
- liaison with nearby residents in advance of works commencing and on an ongoing basis to provide information regarding the programme, as set out in the oCEMP;
- construction related plant to be located as far as reasonably practicable from noise-sensitive receptors; and
- a noise and vibration monitoring regime may be implemented, focusing on the nearest/most exposed receptors and including trigger levels to ensure significant levels of noise and vibration are avoided.

Operational Phase

9.164 As described in the previous section, no significant effects due to operational noise associated with the ILPN SRFI have been predicted overall and therefore no additional mitigation measures are required based on the initial assessment work.

Remote Highway Works

9.165 At the PEIR stage, an overview of potential highways and infrastructure options currently under consideration is provided in Appendix 7.2. The finalised highways mitigation approach will be considered in the noise and vibration ES chapter and will be the subject of further targeted consultation in Q1 2026.

RESIDUAL ENVIRONMENTAL EFFECTS

Construction Phase

9.166 No significant effects from noise or vibration associated with the construction of the ILPN SRFI have been predicted.

9.167 With the implementation of BPM through the oCEMP, it is anticipated that the short-term, temporary adverse effects from the construction works, including the likely out-of-hours and night-time working with respect to the Highway Works, will occur less frequently, and the resulting noise and vibration levels will be reduced. However, it is difficult to quantify the reduction that would be achieved at this stage of the development. Therefore, it is considered possible that some short-term, temporary adverse effects may remain. However, they will have been mitigated and minimised to comply with national policy and would not be

significant in EIA terms.

Operational Phase

- 9.168 Following a detailed assessment of operational noise impacts, it has been determined that no additional mitigation measures are required beyond those already embedded in the design. The incorporated acoustic controls—such as the bund and noise barrier—reduce noise emissions to levels that show no significant adverse effects on noise sensitive receptors.
- 9.169 No significant effects from noise or vibration associated with the operation of the ILPN SRFI have been predicted and no additional mitigation is required.

Remote Highway Works

- 9.170 At the PEIR stage, an overview of potential highways and infrastructure options currently under consideration is provided in Appendix 7.2. The finalised highways mitigation approach will be considered in the noise and vibration ES chapter and will be the subject of further targeted consultation in Q1 2026.

CUMULATIVE AND IN-COMBINATION EFFECTS

Cumulative Effects

- 9.171 The ES will consider the potential cumulative effects of the Proposed Development and other relevant projects within the defined Zone of Influence for noise and vibration effects as detailed in Table 20.2.

Construction Noise

- 9.172 Should the construction phase of any other developments within 1000m of the DCO Site including CS1, CS2²⁴ and associated allocation LP1 (Parkside West), overlap with the construction phase of the Proposed Development, cumulative noise effects may occur at sensitive receptors. However, these would be minimised through the mitigation measures outlined in the oCEMP for the Proposed Development. The effects arising from any cumulative schemes would also be expected to be controlled by their own oCEMP or similar mechanism. Therefore, it is not anticipated that any significant cumulative effects would arise from construction noise.

Construction Vibration

- 9.173 It is not anticipated that there would be any cumulative vibration effects owing to the distances between the cumulative schemes, the Proposed Development and the sensitive receptors.

Construction and Operational Traffic

- 9.174 Cumulative effects resulting from construction and operational road traffic noise will be

²⁴ Please refer to Appendix 20.1 for a list of cumulative schemes and Chapter 20 for further information regards

assessed as the project progresses and traffic data becomes available. The cumulative developments and allocations that have been included in the relevant traffic scenarios (as agreed with the Transport Working Group) will be clearly identified within the Traffic and Transport Chapter of the ES (Chapter 7). The comparison of the future baseline scenarios against the with development scenarios will allow the relevant cumulative effects to be identified.

Operational Railway Noise & Vibration

- 9.175 Based on the list of schemes identified in Appendix 20.1, it is not anticipated that there would be any cumulative effects arising from rail noise or vibration as these developments will not result in any additional passenger or freight train services.

Operational Noise from Main Site and Western Rail Chord

- 9.176 In terms of operational noise, there could be some cumulative effects from Parkside West and the Proposed Development. It is most likely that these would occur at the receptors close to the Western Rail Chord. Mitigation in the form of a barrier has been proposed to minimise effects arising from the Western Rail Chord and therefore it is considered unlikely that any cumulative effects would be significant. There could also be cumulative effects from the Proposed Development on receptors to the west of the M6, which are also affected by Parkside West. However, it is unlikely that these would be significant, particularly given the distance to the Main Site, the prevailing background noise source of the M6 motorway and the mitigation measures proposed for each development. The cumulative effects will be determined at the ES stage of the project.

In-combination Effects

- 9.177 In-combination effects (intra-project effects) on receptors will be identified at the ES stage of the project, once it has been possible to determine the relevant noise and vibration effects from all noise and vibration sources associated with the project. Consideration will then be given to any other effects that may occur from the Proposed Development at each receptor, and whether this would affect the significance of the overall effect of the ILPN SRFI at that receptor.

IMPLICATIONS OF CLIMATE CHANGE

- 9.178 There are not anticipated to be any particular direct links between climate change and noise.
- 9.179 Climate change is generally associated with more variable weather conditions which could have an effect on the noise assessment. The dominant wind direction in England is south westerly; however, there can be prolonged periods of easterly winds associated with areas of high pressure and, in winter, colder weather, which is not expected to change materially. Both wind directions were captured during the baseline noise surveys and background sound levels identified for both conditions (see paragraphs 9.116 to 9.126). The assessment of operational noise effects from the Main Site have been considered under both wind directions (see Appendix 9.4) .

- 9.180 Climate change also has the potential to intensify heat in the summer. Therefore, potentially noise sensitive receptors could have their windows open for longer durations than at present. However, the operational assessment considers the internal noise levels through a partially open window which would be the worst-case scenario.

SUMMARY AND CONCLUSIONS

- 9.181 The potential noise and vibration impacts and effects that may arise as a result of the construction and operation of the proposed Intermodal Logistics Park North (ILPN) Strategic Rail Freight Interchange (SRFI) development, have been assessed in accordance with relevant Government and Local Policy.
- 9.182 No significant effects due to construction noise or vibration associated with the ILPN SRFI have been predicted overall; however, some short-term, temporary adverse effects are expected during the likely out-of-hours and night period.
- 9.183 No significant effects from on-site operational activities are anticipated. The embedded mitigation measures, including the bunding along Winwick Lane and the acoustic barrier to the west of the Rail Chord, are considered sufficient to effectively reduce operational noise impacts.
- 9.184 It should be noted that a full traffic and rail noise assessment of the Proposed Development and associated Highway Works will be undertaken when more detailed transport modelling is concluded, and further acoustic modelling will be undertaken to assess its associated impacts.

Table 9.23 Summary of effects

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
Main Site and Western Rail Chord						
Construction Phase						
R01 Highfield Farm GF South	High	Non-adverse (below LOAEL)	Temporary increase in noise and vibration as a result of demolition, earthworks and construction works.	oCEMP	No effect (below LOAEL)	Not Significant
R01 Highfield Farm GF West	High	Non-adverse (below LOAEL)	Temporary increase in noise and vibration as a result of demolition, earthworks and construction works.	oCEMP	No effect (below LOAEL)	Not Significant
R02 465 Newton Rd GF	High	Non-adverse (below LOAEL)	Temporary increase in noise and vibration as a result of demolition, earthworks and construction works.	oCEMP	No effect (below LOAEL)	Not Significant
R03 The Orchard Parkside Road	High	Adverse (between LOAEL	Temporary increase in noise and vibration as a result of demolition, earthworks and	oCEMP	Adverse Effect (at or above LOAEL but	Not Significant

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
GF East		and SOAEL)	construction works.		below SOAEL)	
R03 The Orchard Parkside Road GF South	High	Adverse (between LOAEL and SOAEL)	Temporary increase in noise and vibration as a result of demolition, earthworks and construction works.	oCEMP	Adverse Effect (at or above LOAEL but below SOAEL)	Not Significant
R04 Rosemary Drive GF South	High	Adverse (between LOAEL and SOAEL)	Temporary increase in noise and vibration as a result of demolition, earthworks and construction works.	oCEMP	Adverse Effect (at or above LOAEL but below SOAEL)	Not Significant
R05 Banastre Drive GF East	High	Adverse (between LOAEL and SOAEL)	Temporary increase in noise and vibration as a result of demolition, earthworks and construction works.	oCEMP	Adverse Effect (at or above LOAEL but below SOAEL)	Not Significant
R06 12 Whitefield Ave WA128BY GF	High	Adverse (between LOAEL and SOAEL)	Temporary increase in noise and vibration as a result of demolition, earthworks and construction works.	oCEMP	Adverse Effect (at or above LOAEL but below SOAEL)	Not Significant
R07 59 Winwick Rd WA128DB	High	Non-adverse	Temporary increase in noise and vibration as a result of	oCEMP	No effect	Not

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
GF		(below LOAEL)	demolition, earthworks and construction works.		(below LOAEL)	Significant
R08 Monk House Parkside Rd WA28ST GF	High	Adverse (between LOAEL and SOAEL)	Temporary increase in noise and vibration as a result of demolition, earthworks and construction works.	oCEMP	Adverse Effect (at or above LOAEL but below SOAEL)	Not Significant
R09 The Cottage Parkside Rd GF	High	Non-adverse (below LOAEL)	Temporary increase in noise and vibration as a result of demolition, earthworks and construction works.	oCEMP	No effect (below LOAEL)	Not Significant
R10 Hermitage Green	High	Non-adverse (below LOAEL)	Temporary increase in noise and vibration as a result of demolition, earthworks and construction works.	oCEMP	No effect (below LOAEL)	Not Significant
R11 Hilbre Winwick Road GF	High	Adverse (between LOAEL and SOAEL)	Temporary increase in noise and vibration as a result of demolition, earthworks and construction works.	oCEMP	Adverse Effect (at or above LOAEL but below SOAEL)	Not Significant
R12 Hill Crest Winwick Road	High	Adverse (between LOAEL	Temporary increase in noise and vibration as a result of	oCEMP	Adverse Effect (at or above	Not

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
GF		and SOAEL)	demolition, earthworks and construction works.		LOAEL but below SOAEL)	Significant
R13 Hollow Dene Crest Winwick Road GF	High	Adverse (between LOAEL and SOAEL)	Temporary increase in noise and vibration as a result of demolition, earthworks and construction works.	oCEMP	Adverse Effect (at or above LOAEL but below SOAEL)	Not Significant
R14 Sherbrooke Crest Winwick Road GF	High	Adverse (between LOAEL and SOAEL)	Temporary increase in noise and vibration as a result of demolition, earthworks and construction works.	oCEMP	Adverse Effect (at or above LOAEL but below SOAEL)	Not Significant
R15 Over Back Farm Crest Winwick Road GF	High	Adverse (between LOAEL and SOAEL)	Temporary increase in noise and vibration as a result of demolition, earthworks and construction works.	oCEMP	Adverse Effect (at or above LOAEL but below SOAEL)	Not Significant
R16 Over Back Cottage Crest Winwick Road GF	High	Non-adverse (below LOAEL)	Temporary increase in noise and vibration as a result of demolition, earthworks and construction works.	oCEMP	No effect (below LOAEL)	Not Significant

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
R17 Sandy Brow Ln GF	High	Non-adverse (below LOAEL)	Temporary increase in noise and vibration as a result of demolition, earthworks and construction works.	oCEMP	No effect (below LOAEL)	Not Significant
R18 Rock House Sandy Brow Ln GF	High	Non-adverse (below LOAEL)	Temporary increase in noise and vibration as a result of demolition, earthworks and construction works.	oCEMP	No effect (below LOAEL)	Not Significant
R19 The Lodge Sandy Brow Ln GF	High	Non-adverse (below LOAEL)	Temporary increase in noise and vibration as a result of demolition, earthworks and construction works.	oCEMP	No effect (below LOAEL)	Not Significant
R20 Carringtons Coffee Co Winwick Ln GF South	Medium	Non-adverse (below LOAEL)	Temporary increase in noise and vibration as a result of demolition, earthworks and construction works.	oCEMP	No effect (below LOAEL)	Not Significant
R20 Carringtons Coffee Co Winwick Ln GF West	Medium	Non-adverse (below LOAEL)	Temporary increase in noise and vibration as a result of demolition, earthworks and construction works.	oCEMP	No effect (below LOAEL)	Not Significant

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
R21 Kenyon Hall Farm South Winwick Ln GF South	High	Adverse (between LOAEL and SOAEL)	Temporary increase in noise and vibration as a result of demolition, earthworks and construction works.	oCEMP	Adverse Effect (at or above LOAEL but below SOAEL)	Not Significant
R21 Kenyon Hall Farm South Winwick Ln GF West	High	Adverse (between LOAEL and SOAEL)	Temporary increase in noise and vibration as a result of demolition, earthworks and construction works.	oCEMP	Adverse Effect (at or above LOAEL but below SOAEL)	Not Significant
R22 Kenyon Hall Farm North Winwick Ln GF	High	Non-adverse (below LOAEL)	Temporary increase in noise and vibration as a result of demolition, earthworks and construction works.	oCEMP	No effect (below LOAEL)	Not Significant
R23 Morris's Farm Main Ln GF	High	Adverse (between LOAEL and SOAEL)	Temporary increase in noise and vibration as a result of demolition, earthworks and construction works.	oCEMP	Adverse Effect (at or above LOAEL but below SOAEL)	Not Significant
R24 10 Main Ln GF	High	Non-adverse (below LOAEL)	Temporary increase in noise and vibration as a result of demolition, earthworks and	oCEMP	No effect (below LOAEL)	Not Significant

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
			construction works.			
R25 Home Main Ln GF	High	Non-adverse (below LOAEL)	Temporary increase in noise and vibration as a result of demolition, earthworks and construction works.	oCEMP	No effect (below LOAEL)	Not Significant
R26 High Peak Residential & Nursing Home Main Ln GF	High	Non-adverse (below LOAEL)	Temporary increase in noise and vibration as a result of demolition, earthworks and construction works.	oCEMP	No effect (below LOAEL)	Not Significant
R27 49 Kenyon Ln GF	High	Non-adverse (below LOAEL)	Temporary increase in noise and vibration as a result of demolition, earthworks and construction works.	oCEMP	No effect (below LOAEL)	Not Significant
R28 345 Newton Rd GF	High	Non-adverse (below LOAEL)	Temporary increase in noise and vibration as a result of demolition, earthworks and construction works.	oCEMP	No effect (below LOAEL)	Not Significant
Operational Phase, Day-time – Easterly wind direction						

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
R01 Highfield Farm GF South	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R01 Highfield Farm GF West	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R02 465 Newton Rd GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R03 The Orchard Parkside Road	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations	None ¹	No effect (below LOAEL)	Not Significant

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
GF East			loading/unloading of HGV's, and movement of vehicles			
R03 The Orchard Parkside Road GF South	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R04 Rosemary Drive GF South	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R05 Banastre Drive GF East	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R06 12 Whitefield Ave	High	No Observed Effect i.e. below	Daytime noise from operational activities at Main	None ¹	No effect	Not

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
GF		LOAEL	Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles		(below LOAEL)	Significant
R07 59 Winwick Rd GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R08 Monk House Parkside Rd GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R09 The Cottage Parkside Rd GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
R10 Hermitage Green	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R11 Hilbre Winwick Road GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R12 Hill Crest Winwick Road GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R13 Hollow Dene Crest Winwick Road GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's,	None ¹	No effect (below LOAEL)	Not Significant

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
			and movement of vehicles			
R14 Sherbrooke Crest Winwick Road GF	High	No Observed Adverse Effect	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No Observed Adverse Effect	Not Significant
R15 Over Back Farm Crest Winwick Road GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R16 Over Back Cottage Crest Winwick Road GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R17 Sandy	High	No Observed	Daytime noise from operational activities at Main	None ¹	No Observed	Not

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
Brow Ln GF		Adverse Effect	Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles		Adverse Effect	Significant
R18 Rock House Sandy Brow Ln GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R19 The Lodge Sandy Brow Ln GF	High	No Observed Adverse Effect	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No Observed Adverse Effect	Not Significant
R20 Carringtons Coffee Co Winwick Ln GF South	Medium	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
R20 Carringtons Coffee Co Winwick Ln GF West	Medium	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R21 Kenyon Hall Farm South Winwick Ln GF South	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R21 Kenyon Hall Farm South Winwick Ln GF West	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R22 Kenyon Hall Farm North Winwick Ln GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations	None ¹	No adverse effect (below LOAEL)	Not Significant

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
			loading/unloading of HGV's, and movement of vehicles			
R23 Morris's Farm Main Ln GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R24 10 Main Ln GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R25 Home Main Ln GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R26 High Peak Residential &	High	No Observed Effect i.e. below	Daytime noise from operational activities at Main	None ¹	No effect	Not

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
Nursing Home Main Ln GF		LOAEL	Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles		(below LOAEL)	Significant
R27 49 Kenyon Ln GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R28 345 Newton Rd GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
Operational Phase, Night-time – Easterly wind direction						
R01 Highfield Farm 1F South	High	Observed Adverse Effect (at or above LOAEL but below	Night time noise from operational activities at Main Site and WRC including Railport operations	None ¹	Adverse Effect (at or above LOAEL but below SOAEL)	Not Significant

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
		SOAEL)	loading/unloading of HGV's, and movement of vehicles			
R01 Highfield Farm 1F West	High	Observed Adverse Effect (at or above LOAEL but below SOAEL)	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	Adverse Effect (at or above LOAEL but below SOAEL)	Not Significant
R02 465 Newton Rd 1F	High	Observed Adverse Effect (at or above LOAEL but below SOAEL)	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	Adverse Effect (at or above LOAEL but below SOAEL)	Not Significant
R03 The Orchard Parkside Road 1F East	High	No Observed Adverse Effect	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No Observed Adverse Effect	Not Significant
R03 The Orchard	High	No Observed	Night time noise from operational activities at Main	None ¹	No Observed	Not

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
Parkside Road 1F South		Adverse Effect	Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles		Adverse Effect	Significant
R04 Rosemary Drive 1F South	High	No Observed Effect i.e. below LOAEL	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R05 Banastre Drive 1F East	High	No Observed Effect i.e. below LOAEL	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R06 12 Whitefield Ave 1F	High	No Observed Effect i.e. below LOAEL	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
R07 59 Winwick Rd 1F	High	No Observed Effect i.e. below LOAEL	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R08 Monk House Parkside Rd 1F	High	No Observed Effect i.e. below LOAEL	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R09 The Cottage Parkside Rd 1F	High	No Observed Effect i.e. below LOAEL	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R10 Hermitage Green	High	No Observed Effect i.e. below LOAEL	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's,	None ¹	No effect (below LOAEL)	Not Significant

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
			and movement of vehicles			
R11 Hilbre Winwick Road 1F	High	No Observed Adverse Effect	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No Observed Adverse Effect	Not Significant
R12 Hill Crest Winwick Road 1F	High	No Observed Adverse Effect	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No Observed Adverse Effect	Not Significant
R13 Hollow Dene Crest Winwick Road 1F	High	Observed Adverse Effect (at or above LOAEL but below SOAEL)	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	Adverse Effect (at or above LOAEL but below SOAEL)	Not Significant
R14 Sherbrooke Crest Winwick	High	Observed Adverse Effect	Night time noise from operational activities at Main	None ¹	Adverse Effect (at or above	Not

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
Road 1F		(at or above LOAEL but below SOAEL)	Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles		LOAEL but below SOAEL)	Significant
R15 Over Back Farm Crest Winwick Road 1F	High	Observed Adverse Effect (at or above LOAEL but below SOAEL)	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	Adverse Effect (at or above LOAEL but below SOAEL)	Not Significant
R16 Over Back Cottage Crest Winwick Road 1F	High	Observed Adverse Effect (at or above LOAEL but below SOAEL)	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	Adverse Effect (at or above LOAEL but below SOAEL)	Not Significant
R17 Sandy Brow Ln 1F	High	No Observed Adverse Effect	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No Observed Adverse Effect	Not Significant

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
R18 Rock House Sandy Brow Ln 1F	High	No Observed Adverse Effect	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No Observed Adverse Effect	Not Significant
R19 The Lodge Sandy Brow Ln 1F	High	No Observed Adverse Effect	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No Observed Adverse Effect	Not Significant
R20 Carringtons Coffee Co Winwick Ln 1F South	Medium	No Observed Adverse Effect	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No Observed Adverse Effect	Not Significant
R20 Carringtons Coffee Co Winwick Ln 1F	Medium	No Observed Adverse Effect	Night time noise from operational activities at Main Site and WRC including Railport operations	None ¹	No Observed Adverse Effect	Not Significant

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
West			loading/unloading of HGV's, and movement of vehicles			
R21 Kenyon Hall Farm South Winwick Ln GF South	High	No Observed Adverse Effect	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No Observed Adverse Effect	Not Significant
R21 Kenyon Hall Farm South Winwick Ln GF West	High	Observed Adverse Effect (at or above LOAEL but below SOAEL)	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	Adverse Effect (at or above LOAEL but below SOAEL)	Not Significant
R22 Kenyon Hall Farm North Winwick Ln 1F	High	No Observed Effect i.e. below LOAEL	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R23 Morris's Farm Main Ln	High	No Observed	Night time noise from operational activities at Main	None ¹	No Observed	Not

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
1F		Adverse Effect	Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles		Adverse Effect	Significant
R24 10 Main Ln 1F	High	No Observed Adverse Effect	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No Observed Adverse Effect	Not Significant
R25 Home Main Ln 1F	High	No Observed Effect i.e. below LOAEL	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R25 Home Main Ln GF	High	No Observed Effect i.e. below LOAEL	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
R26 High Peak Residential & Nursing Home Main Ln 1F	High	No Observed Effect i.e. below LOAEL	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R26 High Peak Residential & Nursing Home Main Ln GF	High	No Observed Effect i.e. below LOAEL	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R27 49 Kenyon Ln GF	High	No Observed Effect i.e. below LOAEL	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R28 345 Newton Rd GF	High	No Observed Effect i.e. below LOAEL	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's,	None ¹	No effect (below LOAEL)	Not Significant

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
			and movement of vehicles			
Operational Phase, Day-time – Westerly wind direction						
R01 Highfield Farm GF South	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R01 Highfield Farm GF West	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R02 465 Newton Rd GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
R03 The Orchard Parkside Road GF East	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R03 The Orchard Parkside Road GF South	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R04 Rosemary Drive GF South	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R05 Banastre Drive GF East	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's,	None ¹	No effect (below LOAEL)	Not Significant

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
			and movement of vehicles			
R06 12 Whitefield Ave GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R07 59 Winwick Rd GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R08 Monk House Parkside Rd GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R09 The Cottage	High	No Observed Effect i.e. below	Daytime noise from operational activities at Main	None ¹	No effect	Not

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
Parkside Rd GF		LOAEL	Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles		(below LOAEL)	Significant
R10 Hermitage Green	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R11 Hilbre Winwick Road GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R12 Hill Crest Winwick Road GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
R13 Hollow Dene Crest Winwick Road GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R14 Sherbrooke Crest Winwick Road GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R15 Over Back Farm Crest Winwick Road GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R16 Over Back Cottage Crest Winwick Road	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations	None ¹	No effect (below LOAEL)	Not Significant

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
GF			loading/unloading of HGV's, and movement of vehicles			
R17 Sandy Brow Ln GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R18 Rock House Sandy Brow Ln GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R19 The Lodge Sandy Brow Ln GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R20 Carringtons Coffee Co	Medium	No Observed Effect i.e. below	Daytime noise from operational activities at Main	None ¹	No effect	Not

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
Winwick Ln GF South		LOAEL	Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles		(below LOAEL)	Significant
R20 Carringtons Coffee Co Winwick Ln GF West	Medium	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R21 Kenyon Hall Farm South Winwick Ln GF South	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R21 Kenyon Hall Farm South Winwick Ln GF West	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
R22 Kenyon Hall Farm North Winwick Ln GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R23 Morris's Farm Main Ln GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R24 10 Main Ln GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R25 Home Main Ln GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's,	None ¹	No effect (below LOAEL)	Not Significant

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
			and movement of vehicles			
R26 High Peak Residential & Nursing Home Main Ln GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R27 49 Kenyon Ln GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R28 345 Newton Rd GF	High	No Observed Effect i.e. below LOAEL	Daytime noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
Operational Phase, Night-time – Westerly wind direction						

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
R01 Highfield Farm 1F South	High	Observed Adverse Effect (at or above LOAEL but below SOAEL)	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	Adverse Effect (at or above LOAEL but below SOAEL)	Not Significant
R01 Highfield Farm 1F West	High	Observed Adverse Effect (at or above LOAEL but below SOAEL)	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	Adverse Effect (at or above LOAEL but below SOAEL)	Not Significant
R02 465 Newton Rd 1F	High	Observed Adverse Effect (at or above LOAEL but below SOAEL)	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No adverse effect (below LOAEL)	Not Significant
R03 The Orchard Parkside Road 1F East	High	No Observed Adverse Effect	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's,	None ¹	No effect (below LOAEL)	Not Significant

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
			and movement of vehicles			
R03 The Orchard Parkside Road 1F South	High	No Observed Adverse Effect	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R04 Rosemary Drive 1F South	High	No Observed Effect i.e. below LOAEL	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R05 Banastre Drive 1F East	High	No Observed Effect i.e. below LOAEL	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R06 12 Whitefield Ave	High	No Observed Effect i.e. below	Night time noise from operational activities at Main	None ¹	No effect	Not

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
1F		LOAEL	Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles		(below LOAEL)	Significant
R07 59 Winwick Rd 1F	High	No Observed Effect i.e. below LOAEL	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R08 Monk House Parkside Rd 1F	High	No Observed Effect i.e. below LOAEL	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R09 The Cottage Parkside Rd 1F	High	No Observed Effect i.e. below LOAEL	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
R10 Hermitage Green	High	No Observed Effect i.e. below LOAEL	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R11 Hilbre Winwick Road 1F	High	No Observed Adverse Effect	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R12 Hill Crest Winwick Road 1F	High	No Observed Adverse Effect	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R13 Hollow Dene Crest Winwick Road	High	Observed Adverse Effect (at or above LOAEL but below	Night time noise from operational activities at Main Site and WRC including Railport operations	None ¹	No adverse effect (below LOAEL)	Not Significant

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
1F		SOAEL)	loading/unloading of HGV's, and movement of vehicles			
R14 Sherbrooke Crest Winwick Road 1F	High	Observed Adverse Effect (at or above LOAEL but below SOAEL)	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No adverse effect (below LOAEL)	Not Significant
R15 Over Back Farm Crest Winwick Road 1F	High	Observed Adverse Effect (at or above LOAEL but below SOAEL)	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No adverse effect (below LOAEL)	Not Significant
R16 Over Back Cottage Crest Winwick Road 1F	High	Observed Adverse Effect (at or above LOAEL but below SOAEL)	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No adverse effect (below LOAEL)	Not Significant
R17 Sandy	High	Observed Adverse Effect	Night time noise from operational activities at Main	None ¹	Adverse Effect (at or above	Not

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
Brow Ln 1F		(at or above LOAEL but below SOAEL)	Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles		LOAEL but below SOAEL)	Significant
R18 Rock House Sandy Brow Ln 1F	High	No Observed Adverse Effect	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No adverse effect (below LOAEL)	Not Significant
R19 The Lodge Sandy Brow Ln 1F	High	No Observed Adverse Effect	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No adverse effect (below LOAEL)	Not Significant
R20 Carringtons Coffee Co Winwick Ln 1F South	Medium	No Observed Adverse Effect	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No adverse effect (below LOAEL)	Not Significant

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
R20 Carringtons Coffee Co Winwick Ln 1F West	Medium	No Observed Adverse Effect	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No adverse effect (below LOAEL)	Not Significant
R21 Kenyon Hall Farm South Winwick Ln GF South	High	No Observed Adverse Effect	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	Adverse Effect (at or above LOAEL but below SOAEL)	Not Significant
R21 Kenyon Hall Farm South Winwick Ln GF West	High	Observed Adverse Effect (at or above LOAEL but below SOAEL)	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	Adverse Effect (at or above LOAEL but below SOAEL)	Not Significant
R22 Kenyon Hall Farm North Winwick Ln 1F	High	No Observed Effect i.e. below LOAEL	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's,	None ¹	Adverse Effect (at or above LOAEL but below SOAEL)	Not Significant

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
			and movement of vehicles			
R23 Morris's Farm Main Ln 1F	High	No Observed Adverse Effect	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No adverse effect (below LOAEL)	Not Significant
R24 10 Main Ln 1F	High	No Observed Adverse Effect	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	Adverse Effect (at or above LOAEL but below SOAEL)	Not Significant
R25 Home Main Ln 1F	High	No Observed Effect i.e. below LOAEL	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No adverse effect (below LOAEL)	Not Significant
R26 High Peak Residential &	High	No Observed Effect i.e. below	Night time noise from operational activities at Main	None ¹	No effect	Not

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
Nursing Home Main Ln 1F		LOAEL	Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles		(below LOAEL)	Significant
R26 High Peak Residential & Nursing Home Main Ln GF	High	No Observed Effect i.e. below LOAEL	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R27 49 Kenyon Ln GF	High	No Observed Effect i.e. below LOAEL	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant
R28 345 Newton Rd GF	High	No Observed Effect i.e. below LOAEL	Night time noise from operational activities at Main Site and WRC including Railport operations loading/unloading of HGV's, and movement of vehicles	None ¹	No effect (below LOAEL)	Not Significant

Receptor	Receptor sensitivity	Magnitude of impact	Description of potential impact	Proposed mitigation	Residual effect	Significant / not significant
¹ Includes embedded mitigation as described in Paragraph 9.136 and 9.137.						