

9. Noise and Vibration

Introduction

- 9.1 This Chapter reports the outcome of the assessment of likely significant environmental effects arising from the Project for Assessment in relation to noise and vibration. It also reports the likely significant environmental effects associated with the Proposed Scheme, which comprises the planning application.
- 9.2 The Chapter describes the technical consultation that has been undertaken during the EIA, the scope of the assessment and assessment methodology, and a summary of the baseline information that has informed the assessment.
- 9.3 In line with **Chapter 2: Approach to EIA**, the assessment reports on the likely significant environmental effects, the further mitigation measures required to prevent, reduce or offset any significant adverse effects, or further enhance beneficial effects. The conclusions are provided both in terms of the residual effects and whether these are considered significant. The assessment of effects takes into consideration both primary and tertiary mitigation (see **Chapter 2: Approach to EIA** for further details) and is informed by the EIA Scoping process (**Appendix 2.1 – 2.2**) and iterative scoping process where applicable.
- 9.4 This Chapter, and its associated **Figures 9.1 to 9.3** and **Appendices 9.1 to 9.2**), is intended to be read as part of the wider ES with particular reference to the introductory Chapters of this ES (**Chapters 1 – 6**).
- 9.5 In addition, this Chapter should be read in conjunction with **Chapter 19: Assessment of Cumulative Effects**.

Summary of Consultation

- 9.6 **Table 9.1** provides an overview of the consultation that has been undertaken to inform the EIA, including the consideration of likely significant effects and the methodology for assessment.

Table 9.1: Summary of Consultation

Body/Organisation	Contact	Date/Form of Consultation	Summary of Consultation Outputs
BC, Environmental Health Department	Unit Manager, Commercial Team, Public Protection	9 th May 2024, Virtual Meeting	Scope of work verbally agreed with respect to: Qualitative noise and vibration assessment for all construction and operational effects with the exception of the assessment of highways infrastructure (to be agreed as

Body/Organisation	Contact	Date/Form of Consultation	Summary of Consultation Outputs
			detailed proposals emerge). Off-site road traffic noise assessment based on basic noise level calculations relating to the change in noise levels on the local road network.
RBC, Environmental Health Department	Environmental Health Specialist Lead,(Environmental Protection	13 th May 2024, Virtual Meeting	As above.
BC, Environmental Health Department	Unit Manager, Commercial Team, Public Protection	13 th May 2024, Email	Agreement of scope of noise survey including provisional long term and short term monitoring locations (Figure 9.1) and duration of the survey.
RBC, Environmental Health Department	Environmental Health Specialist Lead (Environmental Protection	14 th May 2024, Email	As above

Scope of the Assessment

9.7 An EIA Scoping Report was submitted to BC and RBC on 17 October 2024, as presented as **Appendix 2.1**. A Scoping Opinion has not been received to date; however a number of consultation responses have been received and are provided in **Appendix 2.2**. A response to the comments in **Appendix 2.2** are provided in **Appendix 2.3**. This section provides confirmation on the scope of the assessment presented within this Chapter following submission of the EIA Scoping Report.

Effects Not Considered to be Significant

9.8 The following effects were not considered significant as part of the EIA Scoping Report and are not considered further in this Chapter:

- Operational vibration.

Effects Considered Likely to be Significant

9.9 The following effects (**Table 9.2**) were considered likely to be significant and are reported within this Chapter:

Table 9.2: Effects Considered Likely to be Significant

Likely Significant Effect	Receptor(s)	Applicable Development Stage	Spatial Zone
Noise from construction works	Surrounding existing and, potentially, future residential receptors	Construction	All Spatial Zones
Vibration from construction works	Surrounding existing and, potentially, future residential receptors	Construction	All Spatial Zones
Construction traffic noise on the road network	Surrounding existing residential receptors and, potentially, future residential receptors	Construction	All Spatial Zones
Noise from proposed commercial and industrial uses	Surrounding existing and, potentially, future residential receptors	Operation	All Spatial Zones
Noise from proposed energy infrastructure (Providing power to the Project for Assessment)	Surrounding existing and, potentially, future residential receptors	Operation	All Spatial Zones
Noise from general activities (vehicle movements on the internal access roads and car parking)	Surrounding existing and, potentially, future residential receptors	Operation	All Spatial Zones
Noise from development generated road traffic and new highway infrastructure	Surrounding existing and, potentially, future residential receptors	Operation	All Spatial Zones
Noise from existing and reasonably foreseeable future noise sources on proposed residential receptors	Future residential receptors	Operation	FF

- 9.10 'Noise from general activities (vehicle movements on the internal access roads and car parking) was not specifically identified and referenced in the EIA Scoping Report but has been specifically defined for completeness.

Assessment Methodology

Legislative Framework, Policy and Guidance

9.11 The following legislation and policy has informed the assessment of effects within this Chapter, and is detailed further in **Appendix 9.1 and 9.2**:

- National Planning Policy Framework which sets out the Government's planning policies in order to achieve sustainable development, including minimising the impacts of noise¹;
- Noise Policy Statement for England (NPSE) which sets out the long term aims of Government noise policy²;
- Planning Practice Guidance (PPG): Noise³;
- Control of Pollution Act;
- Greater Manchester's Places for Everyone (PfE) Joint Development Plan Document⁴;
- Rochdale Borough Unitary Development Plan 2001 – 2016⁵;
- Bury Unitary Development Plan (1997)⁶; and
- Noise insulation Regulations⁷.

9.12 The following guidance has informed the assessment of effects within this Chapter and is detailed further in **Appendices 9.1 and 9.2**:

- British Standard (BS) BS 5228:2009+A1:2014: for assessing the impact of noise and vibration during the construction phase^{8 9};
- BS 4142:2014+A1:2019: for assessing the impact of noise from commercial and industrial noise sources the operational phase¹⁰;
- World Health Organisation: Guidelines for Community Noise (1999) for assessing effects of operational noise at existing and proposed receptors¹¹;
- BS 8233: 2014 for assessing effects of operational noise at existing and proposed receptors¹²;
- HM Government, Approved Document O – Overheating (2021 Edition);
- Design Manual for Roads and Bridges (DMRB) LA 111 Noise and Vibration for assessing the impact of development generated road traffic [Referred to hereon in as LA111]¹³; and
- Calculation of Road Traffic Noise (CRTN) for calculating road traffic noise levels¹⁴.

Defining the Study Area

9.13 All human noise sensitive receptors within the study area are shown in **Figure 9.1**. This includes human receptors identified around the Project for Assessment that have the potential to be affected by noise on account of their proximity to the Project for Assessment.

- 9.14 In relation to noise from road traffic on the surrounding network, all road links where there is the potential for an adverse effect to occur have been examined. The full extent of the study area corresponds to the extent of the study area undertaken for the Transport Assessment. With regard to the assessment of operational road traffic noise, further details are provided within this Chapter where a more detailed study area with respect to LA111 methodology has been incorporated.

Background Studies to Inform the ES / Establishing the Baseline

- 9.15 **Table 9.3** summarises all surveys undertaken to inform the assessment presented within this Chapter.

Table 9.3: Background Studies / Surveys / Evaluations /Analysis

Study / Survey / Analysis / Evaluation	Overview	Date of Completion
Initial site visit	Observations made of the existing noise environment in and around the Assessment Boundary.	19 th March 2024
Baseline Noise Survey (Appendix 9.1)	Proportionate baseline noise surveys at positions representative of identified noise sensitive receptors within and around the Assessment Boundary have been completed during August to October following agreement with the EHOs at BC and RBC on the locations for monitoring. The scope included a series of unattended measurements undertaken over a minimum four day period including both weekday and weekend periods (subject to access) and sample attended measurements. The results of the noise survey are reported in the ES and Appendix 9.1 . The surveys undertaken are considered proportionate at this outline planning stage.	August – October, 2024

Assessment Process

Construction Stage

- 9.16 In accordance with the approach presented within the EIA Scoping Report (**Appendix 2.1**) and verbal agreement with the Districts EHO's, a qualitative assessment has been

undertaken with reference to the guidance provided within BS 5228. Professional judgement has been used to identify situations where adverse and potentially significant adverse impacts could occur. Typically, for most developments, noise and vibration during the construction phase is controlled through industry standard mitigation measures as tertiary mitigation. Secondary mitigation measures provide allowance for specific control measures to be identified at a more detailed stage when sufficient detailed information is available. Noise and vibration thresholds have been presented to provide a means of establishing parameters which could be used to inform such future assessment and control of construction noise and vibration on a proportionate basis. Construction works that will occur within the Project for Assessment but outside of the Application Boundary will be a matter for when planning applications are made for those relevant areas.

- 9.17 For larger scale infrastructure works (such as the infrastructure works in Infrastructure Area BBB), the methodology within LA111 prescribes that a detailed assessment is undertaken which aligns with the methodology presented within this Chapter. Such assessments would be undertaken as part of separate planning applications when further detailed information would be expected to be available. At this stage it would not be proportionate or feasible to undertake a more detailed and meaningful analysis. Therefore, the likely effects are considered to be generally comparable to works associated with non-highway construction works and a qualitative assessment has been undertaken on a proportionate basis. This is considered a reasonable assumption with respect to operations during the normal working daytime period, particularly as the closest receptors are likely to be located close to the local and strategic motorway network. However, it is acknowledged that works to highway infrastructure could occur outside of normal working daytime periods including during the night-time. During these periods, baseline ambient noise levels are typically lower than during the day along with lower noise thresholds and effects could be greater. This is further considered in later sections of this Chapter.

Operational Stage

Industrial / Commercial Noise Generating Sources Including Proposed Energy Infrastructure

- 9.18 As the Proposed Scheme is outline in nature, there are no fixed details of buildings or features including exact locations of operational noise generating sources. This is also applicable to the Project for Assessment. On this basis, undertaking a quantitative assessment would not be feasible or provide a meaningful assessment. Therefore, in accordance with the approach presented within the EIA Scoping Report and verbal agreement with the Districts EHO's, a qualitative assessment of sources of commercial and industrial noise during the operational phase within the Assessment Boundary has been undertaken with reference to the guidance provided within BS 4142. At this outline stage, the assessment considers sources of noise that would be likely to be present such as the servicing of units, noise breakout from buildings and building services plant equipment. The assessment is based on the range of proposed end-uses anticipated within the Assessment Boundary as defined in **Chapter 4: Development Specification – Project for Assessment** within the context of the existing and reasonably foreseeable future sensitive receptors to proposed employment development areas. Consideration has also been given to proposed potential energy infrastructure that will provide power to the Proposed Scheme and Project for Assessment.

General Activities (Vehicle Movements On The Internal Access Roads and Car Parking)

- 9.19 Further to noise associated with commercial and industrial activities that would fall within the scope of BS 4142, there are other general activities within the Assessment Boundary. Such noise generating sources are considered to include road traffic on internal access roads and car parks. As details such as the location of roads is unknown at this stage, a qualitative assessment has been undertaken. Consideration with regard to such sources has been given with respect to guidance provided within the World Health Organisation “Guidelines for Community Noise”.

Change in operational road traffic noise

- 9.20 Changes in road traffic noise levels at sensitive receptors located adjacent to the local and strategic road network in the vicinity of the Project for Assessment have been assessed. Traffic noise levels have been predicted following the calculation method provided within CRTN with a proportionate assessment undertaken using the principles of the methodology contained within LA111.
- 9.21 The assessment also includes the consideration of potential highway infrastructure works within the Infrastructure Areas AAA-CCC. Assessments of new highways infrastructure in these areas would be delivered by 3rd parties and subject to separate planning applications. Preliminary early stage design options have been provided for Infrastructure Areas AAA and BBB. These options are indicative only. The infrastructure works could be different in scale and location to the design detail which is currently available. However, in the absence of final details, the options provide the opportunity to present a ‘snapshot’ to enable reasonable assumptions to be made for a proportionate assessment to be undertaken at this stage.
- 9.22 The works considered as part of access arrangements is presented in the **Transport Assessment** and is briefly summarised as follows:
- Potential Infrastructure Area AAA – The area from the Three Arrows junction of Pilsworth Road / Moss Hall Road required for access / junction improvements, Pilsworth Road improvement works extending to the M66 Junction 3 and the area of potential M66 Junction 3 improvement works. It is understood that improvement works to M66 comprise smaller scale improvement incorporating active travel facilities. Initial phases will utilise highway infrastructure that already exists and will include these local highway improvements which are described as the ‘western links’;
 - Potential Infrastructure Area BBB – New M62 Motorway Access Mitigation [Referred to hereon in as ‘M62 MAM’]: The area immediately north and south of the M62 which may be required for the remodelling/improvement works; and
 - Potential Infrastructure Area CCC – A potential future vehicular connection between the South Heywood Masterplan Area (Cumulative Project 1, see **Figure 19.1**) and the wider JPA1.1 Allocation Site. The Applicant has no control over the land necessary to deliver that connection and no primary design details are available. However, a proportionate sensitivity test has been undertaken as part of this assessment.
- 9.23 LA111 provides a methodology to assess the magnitude of change in both the short term and the long term. With regard to effects associated with large scale developments which would be phased over a large number of years, it is considered that the long term assessment

scenario would typically represent the most relevant assessment scenario. This would be due the introduction of traffic over a progressive period on the road network as phases are built out. However, with the introduction of new motorway access mitigation on the M62, it is considered the assessment of effects in the short term would also be required. LA111 provides a methodology to take into account local circumstances as contextual considerations in the short term which would correspond to the assessment of new infrastructure on motorways or trunk roads. These contextual considerations, which feed into the judgement of where effects are Significant or Not Significant, would be generally more appropriate and feasible to consider during more advanced design stages. However, with regard to the M62 MAM, an assessment has been undertaken with reference to local circumstances, where considered feasible, within the context of the level of information available at this stage.

- 9.24 Further to the above, to present a robust approach, effects in both the short term and long term are considered.
- 9.25 It is currently understood the Project for Assessment will commence construction in 2026 with full build out by 2045 anticipated. Therefore, a series of scenarios have been assessed which are considered to represent a proportionate series of key stages and assessment years. The primary rationale is that, in addition to assessing the opening year of the M62 MAM (assumed to be 2032), a 2032 assessment year would also represent a reasonable scenario to take into account an assessment year towards the front end of what will be a phased development. The inclusion of the 2047 assessment year corresponds to the future assessment year defined in LA111 (15 years after opening) that would be considered required to be assessed with regard to the M62 MAM.
- 9.26 **Table 9.4** presents the assessed short term and long term scenarios along with a rationale as to why the assessment years have been chosen. Reference is also provided with regard to whether Basic Noise Level (BNL) calculations and / or noise modelling has been undertaken. The BNL is the measure of source noise from traffic using a road as defined by the methodology stated in CRTN. This allows a basic comparison between the change in source noise level between different scenarios on a given link.
- 9.27 To aid the discussion of the assessment scenarios adopted, the following aspects have been included in the calculations and modelling:
- All Do Something (DS) scenarios consider traffic flows associated with the Project for Assessment;
 - Access mitigation options including improvements at the Three Arrows junction, Fowler Welch junction and the M66 J3 active travel improvements are included in all scenarios. This is with the exception of the Baseline scenario. With regard to the short term, it is considered that a more stringent assessment is presented as, due to traffic being introduced to the road network on a gradual basis, effects would be considered to be medium term. However, there is no standard guidance which enables a direct assessment in the medium term;
 - The assessment method includes the assessment of the Do Minimum (DM) compared to the DS in the short term and long term scenarios which correspond to the guidance provided within LA111;

- In the 2032 assessment year, scenarios for the ‘with’ and ‘without’ the M62 MAM have been assessed. This year represents the assumed adopted opening year for the M62 MAM. For all long term DS scenarios, the M62 MAM has been included in the traffic data as being present;
- Sensitivity tests have been undertaken to consider the impact of the Project for Assessment in isolation without the introduction of committed development traffic flows (Referred to as 2024 Base v 2024 With Dev). Typically, assessment would be based on a comparison between the DM and DS scenarios with the DM scenario incorporating committed development flows. However, this enables a sensitivity test of the Project for Assessment in isolation if other committed developments do not come forward. This is considered to represent a reasonable worst case scenario;
- A further sensitivity test has been undertaken to enable an assessment of a potential vehicular access in Potential Infrastructure Area CCC. Traffic data is available in the 2039 assessment year for scenarios with and without an access point onto South Heywood Link Road at Hareshill Road¹. Given the phased approach of the Project for Assessment, it is considered reasonable to consider this assessment scenario in the long term;
- The provided 2047 traffic data includes traffic flows associated with JPA 1.2². This is considered to present a reasonable worst case scenario in the long term inclusive of both JPA 1.1 and JPA 1.2 which will be phased developments. Traffic data for separate DS scenarios ‘with’ and ‘without JPA 1.2 have also been provided by the traffic consultants for the 2032 and 2039 assessment years. Following a review, there are negligible differences between the with and without scenarios (less than +/- 1 dB) on all links which reduces uncertainty in the assessment undertaken being representative of a reasonable worst-case in this regard; and
- The provided traffic flow data incorporates the Nationally Significant Infrastructure Project (NSIP) at M60/M62/M66 Simister Island Interchange (Cumulative Project 16, see **Figure 19.1**)³ being in operation in all scenarios except for the 2024 Base (Without Dev).

¹ For the **Transport Assessment**, an assessment year of 2039 was adopted. The timescales for the implementation of JPA 1.1 extend beyond 2039. However, 2039 has been identified due to the alignment with the Place for Everyone Plan period. Reference should be made to **Chapter 2: Approach to EIA** for further details relating to the relevance of assessment years.

² The land allocated within PfE under Policy JPA1.2 (Simister / Bowlee – Northern Gateway).

³ Development Consent Order(DCO): <https://national-infrastructure-consenting.planninginspectorate.gov.uk/projects/TR010064> Status: Recommendation Stage.

Table 9.4: Assessment Scenarios

Short term (ST) / long term (LT)	Assessment Scenario*	BNL / Noise Modelling	Justification
ST	2032 DM v 2032 DS (Without M62 MAM)	BNL and Modelling	ST assessment years align with LA111. (DS includes % of JPA 1.1 development traffic**)
ST	2032 DM v 2032 DS	BNL and Modelling	ST assessment years align with LA111 (DS includes % of JPA 1.1 development traffic**)
LT	2032 DM v 2047 DM	BNL and Modelling	LT assessment years align with LA111
LT	2032 DM v 2047 DS (Inclusive of JPA 1.2)	BNL and Modelling	LT assessment years align with LA111
ST	2024 Base v 2024 With Dev (Without M62 MAM)	BNL	Sensitivity test comparing the baseline in 2024 against DS with % of JPA 1.1 development traffic**. No committed development traffic in DS.
LT	2024 Base v 2024 With Dev (Inclusive of JPA 1.2)	BNL and Modelling	Sensitivity test comparing the baseline in 2024 against DS with full build out and JPA 1.2. No committed development traffic in DS.
LT	2032 DM v 2039 DS (Inclusive of JPA 1.2) 'without' South Heywood vehicular access compared to 'with' South Heywood vehicular access	BNL	Sensitivity Test for potential future vehicular connection between the South Heywood Masterplan Area and the wider JPA1.1 Allocation Site

**Unless stated otherwise, the scenario includes the presence of the M62 MAM*

*** % Development traffic: includes development generated traffic corresponding to 395,000m² quantum. The 2039 DS are reflective of the maximum quantum of development as set out in **Chapter 2: Approach to the EIA**.*

- 9.28 The above scenarios are considered to represent a reasonable worst-case scenario.
- 9.29 The assessed scenarios also comply with the methodology stated within the EIA Scoping Report with the exception of the inclusion of the 2032 DM v 2047 DS scenario 'without' JPA 1.2. However, the assessment based on the 2032 DM v 2047 DS scenario 'inclusive' of JPA 1.2, as defined in **Table 9.4**, presents a reasonable worst case scenario.

9.30 A summary of the proposed assessment approach and steps taken within the assessment is as follows:

- An assessment of the change in noise level on the existing local and strategic highway network. This has been undertaken based on the calculated change in BNL on all links within the study area as a result of the Project for Assessment with reference to the magnitude of change criteria presented in **Tables 9.12** and **Table 9.13**;
- Where the BNL calculations predict a negligible change in the short term and long term, the associated link (and by virtue, receptors along those links) are scoped out from further detailed assessment unless otherwise justified;
- The initial BNL calculations inform the requirement for a more detailed assessment including noise modelling which is based on the following methodology:
 - *Receptors located within 600m of the boundary of Potential Infrastructure Area BBB (as defined within LA111);*
 - *Receptors within 50m of roads where, as a direct outcome of the M62 MAM, an increase in BNL of 1.0 dB or greater is predicted in the short term (as defined within LA111);*
 - *Closest receptors to Potential Infrastructure Area AAA [This assessment has been included in addition to the LA111 requirements noted above]; and*
 - *Receptors within 50m of roads where the magnitude of change in the long term is predicted to be 5.0 dB or greater. [This assessment is not defined within LA111, however, has been undertaken to consider potential Significant effects in the long term based on the magnitude of change corresponding to a moderate effect. As the Proposed Scheme and Project for Assessment will be phased over a number of years, except for the assessment of the M62 MAM, it is considered that the assessment of effects in the long term would be appropriate.]*

9.31 For the 2032 short term scenario which incorporates the M62 MAM being present, it would be expected that there would already be development generated traffic on the road network. Therefore, it is considered that the effects as a direct outcome of the M62 MAM in the short term would be reflected by a comparison between the change in noise level of the 2032 DMvDS (without M62 MAM) and 2032 DMvDS (with M62 MAM) – i.e. where there is a 1.0dB difference in the change in noise level between scenarios rather than a 1.0dB difference between the DM and DS scenarios.

9.32 With regard to the assessment of receptors, LA111 methodology details that an assessment at all receptors is undertaken within the spatial extent as defined in the bullet points above. However, design details are only indicative at this stage. LA111 also states that mitigation measures that are deemed suitable for use should be included, however, the detailed design and associated provision of mitigation measures fall outside of the Application. Therefore, as a proportionate approach, a sample of receptors which represent reasonable worst-case locations within the defined spatial extent have been assessed.

9.33 Further to the above, noise modelling has also been undertaken for receptors located along Castle Road that traverses over the M66 and would provide access to Assessment Plot FF

(proposed residential receptors associated with the Project for Assessment). No traffic data is available on this link in the Base or DM scenarios and thus an initial screening exercise of this link would not be feasible. In reality there would be some existing vehicular movement along this road, however, it is assumed that this would be low. Traffic flows inclusive of vehicular movements associated with Assessment Plot FF are only available in the longer term scenarios (2039 and 2047). However, by comparing the 2024 Base with the 2024 Base (With Development), it is considered that a reasonable worst-case scenario has been undertaken in this regard.

Proposed Residential Receptors (Project for Assessment: Assessment Area FF)

- 9.34 With regard to proposed residential receptors within Assessment Plot FF, assessment that would inform the design of the Plot for residential development would be undertaken as part of separate studies and planning applications. Therefore a high level qualitative assessment has been undertaken based on professional judgement.

Reporting of the Environmental Effects and Significance Criteria

- 9.35 The assessment of likely significant environmental effects as a result of the Project for Assessment has taken into account the construction and operational stage. The following sections define the approach adopted within the assessment for the determination of sensitivity (or value/importance), magnitude of change (or impact), the level of effect and significance.
- 9.36 Furthermore, the NPSE and the PPG require the assessment of noise and vibration against the lowest observed adverse effect level (LOAEL) and the significant observed adverse effect level (SOAEL). These will differ dependent on variables such as the level and character of the noise or vibration source, timings of when it would occur, its duration, existing sounds present and the frequency of the occurrence of the source.
- 9.37 Each different source type requires its own specific value for LOAEL and SOAEL, which depends on these factors and the methodology for assigning significance differs, as it does not allow for these variables to be properly considered. Therefore, each source has been considered separately and values for LOAEL and SOAEL defined. For the purpose of testing compliance with National Planning Policy, it is necessary to demonstrate in a proportionate manner that all sustainable mitigation measures have been applied to seek to avoid exceedances of the SOAEL, to mitigate and minimise exceedances of the LOAEL, and to contribute to improvements where possible. As the Proposed Scheme is outline, a proportionate approach has been taken. Consideration of the LOAEL and SOAEL is presented within the accompanying technical reports presented in **Appendices 9.1** and **9.2**. However, with regard the construction phase, effects have been assessed within this ES Chapter with associated reference to the LOAEL and SOAEL which is specific to the methodology outlined in this Chapter. In addition, with regard to the assessment of local circumstances as outlined previously, reference to the SOAEL has been incorporated into the assessment of remodelling / improvement works in Potential Infrastructure Area BBB. In this regard, compliance with policy discussion complements but is separate to the environmental impact assessment.
- 9.38 As advised in the NPSE *“it is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times.”* Therefore, whilst the SOAEL can be determined by reference to relevant

noise guidance there is an element of professional judgement which is required when determining whether a noise source is significant or not. In some cases this will not be able to be determined until the reserved matters stages of the project.

Determining Sensitivity of Receptor

- 9.39 The sensitivity of affected receptors has been considered based on professional judgement on a scale of **high, medium, low** or **negligible**. This is set out in **Table 9.5**. The assessment focuses on receptors which are of low and medium sensitivity. No assessment would be normally required for receptors of negligible sensitivity whilst a bespoke method would be used for receptors of high sensitivity on a case by case basis.

Table 9.5: Receptor Sensitivity

Sensitivity of Receptor	Description
High	Receptors that are highly sensitive to noise or vibration such as theatres, auditoria, recording studios, concert halls and highly vibration sensitive structures or uses such as certain laboratories or medical facilities.
Medium	Noise and vibration sensitive receptors such as permanent residential buildings, hospitals and other buildings in health/community use, buildings in educational use, hotels and hostels.
Low	Receptors with limited sensitivity to noise and vibration such as recreational facilities, offices, libraries, buildings in religious use, and other workplaces with a degree of sensitivity due to the need to concentrate.
Negligible	Receptors of very low sensitivity to noise and vibration such as industrial or commercial buildings and transient or mobile receptors.

- 9.40 Further to the above, LA111 does not provide a scale of sensitivity for receptors with the method of establishing effects being based on whether a receptor is sensitive or not. Therefore, the criteria used for assessment of operational road traffic noise refers to all receptors being of medium sensitivity.

Determining the Magnitude of Change

- 9.41 The magnitude of change has been considered as the change experienced from the current baseline conditions at the sensitive receptor and where appropriate having regard to relevant noise guidance. The magnitude of change has been considered on a scale of **large, medium, small** or **negligible**.

Magnitude of Change: Construction Phase

- 9.42 A qualitative assessment of noise and vibration effects during the construction phase has been scoped into the ES. BS 5228 provides guidance with respect to when significant effects may occur due to site noise level. Guidance specific to the construction of new highway infrastructure is provided within LA111 which is based on BS 5228:1 guidance and presents LOAEL and SOAEL values which correspond to the threshold values presented in BS 5228:1 Table E3.2. When compared to the approach with regard to defining the SOAEL on large

scale infrastructure projects, the criteria does not always correspond with alternative and higher criteria adopted. However, the assessment of large scale infrastructure would be undertaken by 3rd parties as part of separate studies and planning applications. For instance, the assessment of potential highway infrastructure on the M62 would be expected to be undertaken in accordance with LA111. Therefore, to present a consistent and reasonable approach in this regard, the LOAEL and SOAEL detailed within LA111 guidance have been used.

- 9.43 **Table 9.6** presents the SOAEL with the LOAEL corresponding to the noise level associated with construction works being equal to the existing ambient noise level. Whilst being applicable to residential receptors, this criteria has also been applied for non-residential human receptors in lieu of other relevant guidance specific to construction noise.

Table 9.6: Thresholds of SOAEL at dwellings, from Part 1 of BS 5228⁴

Period	Assessment Category		
	A	B	C
Day: (Weekdays, 0700-1900, Saturday, 0700-1300)	65 dB $L_{Aeq,T}$	70 dB $L_{Aeq,T}$	75 dB $L_{Aeq,T}$
Evenings and weekends: (Weekdays 1900-2300, Saturdays 1300-2300, Sundays 0700 – 2300)	55 dB $L_{Aeq,T}$	60 dB $L_{Aeq,T}$	65 dB $L_{Aeq,T}$
Every day (2300 – 0700)	45 dB $L_{Aeq,T}$	50 dB $L_{Aeq,T}$	55 dB $L_{Aeq,T}$

- 9.44 The values to be used to assess the magnitude of impact for construction work are as shown in **Table 9.7** which corresponds to the guidance provided in DMRB.

Table 9.7: Magnitude of Impact Construction Noise

Magnitude of impact	Construction noise level
Large	Above or equal to SOAEL +5dB
Medium	Above or equal to SOAEL and below SOAEL +5dB
Small	Above or equal to LOAEL and below SOAEL
Negligible	Below LOAEL

⁴ Notes: Assessment Category A: impact criteria to use when baseline ambient sound levels (rounded to the nearest 5 dB) are less than these values ;Assessment Category B: impact criteria to use when baseline ambient sound levels (rounded to the nearest 5 dB) are the same as category A values; and Assessment Category C: impact criteria to use when baseline ambient sound levels (rounded to the nearest 5 dB) are higher than category A values. If the ambient sound level exceeds the Assessment Category C threshold values given in the table (i.e. the ambient sound level is higher than the above values), then an impact is deemed to occur if the total $L_{Aeq,T}$ sound level for the period increases by more than 3 dB due to construction activity.

- 9.45 A significant effect is deemed to occur where the relevant criteria are exceeded for the following periods of time:
- 10 or more days or nights in any 15 consecutive days or nights; or
 - a total number of days or nights exceeding 40 in any 6 consecutive months.
- 9.46 Where an assessment conclusion identifies a significant effect, it is on the basis that the effect is assumed to meet both the noise level criteria and the duration criteria, unless otherwise stated. Where there is uncertainty as to whether the duration criteria would be met, a precautionary approach has been adopted and it is assumed that the works would continue for a sufficient period to meet the duration criteria.
- 9.47 **Table 9.8** presents the magnitude of impact of construction traffic noise on the local road network which aligns with the assessment approach adopted within DMRB LA111 Noise and Vibration (LA111). This corresponds to a proportionate assessment to establish the magnitude of change for receptors closest to the local road network.

Table 9.8: Magnitude of Impact Construction Traffic

Magnitude of impact	Increase in basic noise level of closest public road used for construction traffic (dB)
Large	Greater than or equal to 5.0
Medium	Greater than or equal to 3.0 and less than 5.0
Small	Greater than or equal to 1.0 and less than 3.0
Negligible	Less than 1.0

- 9.48 For the assessment of magnitude of construction vibration **Table 9.9** will be used. LA111 guidance states that a peak particle velocity (PPV) of 0.3m/s corresponds to the LOAEL and 1mm/s corresponds to the SOAEL inside buildings. A corresponding description of vibration effects is provided within Table B.1 of BS 5228:2 which states:
- 0.14 mm/s: Vibration might be just perceptible in the most sensitive situations for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration;
 - 0.3 mm/s: Vibration might be just perceptible in residential environments;
 - 1.0 mm/s: It is likely that vibration of this level in residential environments will cause complaint, but can be tolerated if prior warning and explanation has been given to residents; and
 - 10 mm/s: Vibration is likely to be intolerable for any more than a very brief exposure to this level in most building environments.

Table 9.9: Values to assess the magnitude of vibration impact from all construction sources (day or night)

Magnitude of Impact				Parameter
Negligible	Small	Medium	Large	
<0.3	$0.3 \leq$ to <1	1 < to <10	<10	PPV mm/s

9.49 Construction vibration will be considered significant, if the magnitude of impact is medium or large at a low or medium sensitive receptor, and occurs for a duration exceeding:

- 10 or more days or nights in any 15 consecutive days or nights; or
- a total number of days or nights exceeding 40 in any 6 consecutive months.

9.50 As with the assessment of construction noise, where an assessment conclusion identifies a significant effect, it is on the basis that the effect is assumed to meet both the vibration level criteria and the duration criteria, unless otherwise stated. Where there is uncertainty as to whether the duration criteria would be met, a precautionary approach has been adopted and it is assumed that the works would continue for a sufficient period to meet the duration criteria.

Magnitude of Change: Operational Phase

On-site Industrial / Commercial Noise Generating Sources

9.51 To assess noise from sources of commercial and industrial noise such as servicing, noise breakout and building services plant, guidance within BS 4142 has been used to determine magnitude of change.

9.52 BS 4142 states that, to consider the effects of noise from such plant, subtracting the background sound level from the rating noise level, where both are determined in accordance with the procedures set out in that standard, will give the following initial outcomes:

“A difference of around +10 dB 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.”

“The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.”

9.53 Once the level difference is established, this must be considered in context, as described in BS 4142, to decide the overall impact. **Table 9.10** defines the magnitude of impact that correspond to an initial BS 4142 assessment which is based on the difference between the

rating and background sound levels, prior to any consideration of context. Day is taken to be 07:00 to 23:00 hours and night is 23:00 to 07:00 hours.

Table 9.10: Values to be used to assess the magnitude of impact for operational industrial and commercial noise, all values are free field.

Magnitude of Change	Definition of Magnitude BS4142: 2014 assessment level, subject to context	Description provided in BS4142: 2014
Large	$\geq +10\text{dB}$	'A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context.'
Medium	$\leq 5\text{dB}$ to $+<10\text{dB}$	A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context.' No BS4142: 2014 description for more than 5dB above the background sound level, but the greater the difference, the greater the magnitude of the change.
Small	$<0\text{dB}$ to $+<5\text{dB}$	No BS 4142: 2014 description but the lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact.
Negligible	$\leq 0\text{dB}$	BS4142: 2014 states that '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.'

** The above presents an initial outcome with BS 4142 clearly stating that contextual considerations should be incorporated into the overall judgement. All assessments of significance must be considered in the context in which the sound occurs, in accordance with the guidance in BS 4142: 2014+A1: 2019. Therefore, there may be situations where the rating level from operational noise is above the background level by more than 10dB i.e. significant but when taking into account the contextual considerations the impact would be reduced i.e. not significant*

- 9.54 The scope of BS 4142 states that it is to be used "to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident".
- 9.55 No guidance is available for the assessment of sound from these types of noise source on receptors with other sensitivities. Therefore, alternative criteria has been adopted where relevant with the approach outlined in **Appendix 9.1**. As such, to establish the magnitude of impact, based on an initial assessment outcome; if the adopted criteria is met, the magnitude of impact is negligible; and, where the adopted criteria is exceeded, the magnitude of impact is large.

Internal Access Roads

- 9.56 Further to noise associated with commercial and industrial activities that would fall within the scope of BS 4142, there are other general activities that would be associated with the Project for Assessment. With regard to general activities, a description of the assessment methodology is provided in **Appendix 9.1** with regard to guidance provided within the World Health “Organisation Guidelines for Community Noise”. **Table 9.11** presents the values assigned to represent the magnitude of change.

Table 9.11: Values to be used to assess the magnitude of impact for general activities (internal access roads and car parking), all values are free field.

Magnitude of Change	Daytime	Night-time	Night-time
Large	>60 dB $L_{Aeq,16hours}$	>55 dB $L_{Aeq,8hours}$	>70dB L_{Amax}
Medium	55 – 60 dB $L_{Aeq,16hours}$	50 – 55 dB $L_{Aeq,8hours}$	65 – 70 dB L_{Amax}
Small	50 – 55 dB $L_{Aeq,16hours}$	45 – 50 dB $L_{Aeq,8hours}$	60 – 65 dB L_{Amax}
Negligible	<50 dB $L_{Aeq,16hours}$	<45 dB $L_{Aeq,8hours}$	<60 dB L_{Amax}

Operational Road Traffic Noise

- 9.57 The magnitudes of noise changes are determined according to **Tables 9.12** and **9.13** below for short term (opening year) and long term (future year) effects respectively which has been sourced from LA111.
- 9.58 For clarity, the changes could be either beneficial or adverse in which case the effects could be either adverse or beneficial. The assessment of the magnitude of change has been considered for all links within the study area.

Table 9.12: Short term magnitude of changes in road traffic noise level

Short term magnitude*	Short term noise change (dB $L_{A10,18hr}$ or L_{night})
Large (or Major)	Greater than or equal to 5.0
Medium (or Moderate)	3.0 to 4.9
Small (or Minor)	1.0 to 2.9
Negligible	less than 1.0

Reference in brackets corresponds to the terminology as presented in LA111 which aligns with the descriptors presented within **Appendix 9.2.*

Table 9.13: Long term magnitude of changes in road traffic noise level

Long term magnitude*	Long term noise change (dB L _{A10,18hr} or L _{night})
Large (or Major)	Greater than or equal to 10.0
Medium (or Moderate)	5.0 to 9.9
Small (or Minor)	3.0 to 4.9
Negligible	less than 3.0

* (Reference in brackets corresponds to the terminology in LA111 as referenced in **Appendix 9.2**).

Proposed Residential development (Assessment Area FF)

- 9.59 Residential developments are typically considered noise sensitive and with the exception of construction phase and traffic do not generate noise. With regard to proposed receptors, residential developments would be designed within the guidelines of industry standard guidance which includes BS 8233:2104 and the ProPg and within the context of National Planning Policy. As Assessment Plot FF is outside of the Application boundary it is not possible to incorporate acoustic considerations that would feed into the design within the context of industry standard guidance and planning policy. Therefore, the method to assign the magnitude of change associated with proposed residential receptors is based on professional judgement rather than corresponding to numerical values.

Determining the Level of Effect

- 9.60 The level of effect has been informed by the magnitude of change due to the Project for Assessment and the evaluation of the sensitivity of the affected receptor. The level of effect has been determined using professional judgement and **Table 9.14** has been a tool which has assisted with this process.
- 9.61 Whilst **Table 9.14** provides ranges, the level of effect is confirmed as a single level and not a range, informed by professional judgement. For each effect, it has been concluded whether the effect is 'beneficial' or 'adverse'.

Table 9.14: Matrix to Support Determining the Level of Effect

Magnitude of change (or impact)	Sensitivity (or value, importance, etc.)				
		High	Medium	Low	Negligible
Large		Major	Moderate to Major	Minor to Moderate	Negligible
Medium		Moderate to Major	Moderate	Minor	Negligible
Small		Minor to Moderate	Minor	Negligible to Minor	Negligible
Negligible		Negligible	Negligible	Negligible	Negligible

- 9.62 The following terms have been used to define the level of the effects identified and these can be 'beneficial' or 'adverse':
- **Major effect:** where the Project for Assessment / Proposed Scheme is likely to cause a considerable change from the baseline conditions and the receptor has limited adaptability, tolerance or recoverability or is of the highest sensitivity;
 - **Moderate effect:** where the Project for Assessment / Proposed Scheme is likely to cause either a considerable change from the baseline conditions at a receptor which has a degree of adaptability, tolerance or recoverability or a less than considerable change at a receptor that has limited adaptability, tolerance or recoverability;
 - **Minor effect:** where the Project for Assessment / Proposed Scheme is likely to cause a small, but noticeable change from the baseline conditions on a receptor which has limited adaptability, tolerance or recoverability or is of the highest sensitivity; or where the Project for Assessment / Proposed Scheme is likely to cause a considerable change from the baseline conditions at a receptor which can adapt, is tolerant of the change or/and can recover from the change; and
 - **Negligible:** where the Project for Assessment / Proposed Scheme is unlikely to cause a noticeable change at a receptor, despite its level of sensitivity or there is a considerable change at a receptor which is not considered sensitive to a change.
- 9.63 The duration of the effect has been assessed as either 'short-term', 'medium-term' or 'long-term'. Short-term is considered to be up to 1 year, medium-term is considered to be between 1 and 10 years and long-term is considered to be greater than 10 years.
- 9.64 Further to the matrix approach, with regard to the assessment of new roads, for noise sensitive receptors where the magnitude of change in the short-term is small, medium or large at noise sensitive buildings, local circumstances have also been considered to determine the level of effect and whether it is significant or not. This is considered to be relevant to the assessment of potential remodelling/improvement works within Potential Infrastructure Area BBB as explained previously.
- 9.65 Whilst the assessment of these additional factors would be more appropriate and feasible at a more advanced design stage, the assessment has included consideration of the following factors in the judgement of significance:
- The absolute noise levels relative to the SOAEL. If the Do Something traffic noise levels are high i.e. above the SOAEL, a traffic noise change in the short-term opening year of 1.0 dB or more may be more appropriate to be considered as a likely significant effect;
 - Where a greater impact in the long term and/or future year is predicted, it can be more appropriate to consider that a smaller change is a likely significant effect. A lower impact in the long-term and/or future year over the short-term can indicate that it is more appropriate to consider that a larger change is not significant.
- 9.66 LA111 provides defined values representing the LOAEL and SOAEL for road traffic noise, as shown in **Table 9.15** below.

Table 9.15: LOAEL and SOAEL values recommended in LA 111

Time Period	LOAEL	SOAEL
Day (06:00-24:00)	55dB $L_{A10,18hr}$ façade	68dB $L_{A10,18hr}$ façade
Night (00:00-06:00)	40dB L_{night} , outside (free-field)	55dB L_{night} , outside (free-field)

Note: This table contains an internal inconsistency: the night time period is defined as 00:00-06:00 hours, but the parameter used is L_{night} , which is, by definition, always an 8 hour night time value (where night time is defined as 23:00 to 07:00 hours). For the purposes of this assessment night time is considered to be 23:00 to 07:00 hours to provide a consistent approach.

Determining Significance

- 9.67 For each effect, a statement has been made as to whether the level of effect is ‘**Significant**’ or ‘**Not Significant**’. This determination has been based on professional judgement taking into account specific site context and having regard to and/or relevant guidance/legislation where applicable (as described above).
- 9.68 Significance has only been concluded for residual effects (i.e. following the identification of secondary mitigation). This is with the exception of reference to operational road traffic noise to aid the description of effects within the context of the assessment undertaken using the principles of the methodology outline within LA111 as described previously.

Baseline Conditions

- 9.69 The Assessment Boundary is formed largely of a number of agricultural parcels with Pike Fold Golf Club located in the south western part of the Assessment Boundary. The strategic highway network, the M62 and M66 form a large part of the Assessment Boundary to the south and west respectively. Moss Hall Road traverses through a central area of the Assessment Boundary and provides access to the existing Birch Industrial Estate which is located centrally and bounded by the Project for Assessment. Further industrial premises are located within the wider area around the Assessment Boundary including within the Heywood Distribution Park to the north and north east.
- 9.70 Generally, there are a limited number of noise sensitive residential receptors within and around the Assessment Boundary. A denser proportion of residential dwellings are located beyond the M62 and M66 to the south and west as well as to the east beyond Queen Elizabeth II Way. A noise receptor location plan is presented in **Figure 9.1** which shows the location of individual and groups of identified receptors sensitive to noise sources with regard to the assessment of commercial / industrial noise sources and internal access roads (identified by the notation ‘R’). For residential premises on the opposite side of the M62 and M66 to the Assessment Boundary, it is unlikely that effects which are Significant would occur due to noise attributable to the intervening motorways. However, for completeness these have also been included on the noise receptor location plan. The receptor locations presented in **Figure 9.1** represent both isolated and clusters of residential receptors as well as future residential receptors within the approved South Heywood development to the east of the Assessment Boundary (which have been considered in **Chapter 19: Assessment of Cumulative Effects**).

- 9.71 In addition, Pilsworth Fisheries (R8) is located adjacent to the Assessment Boundary to the north. A planning application⁵ for the erection of a café / shop at the Fisheries has been approved but is not yet constructed. This is also considered in **Chapter 19: Assessment of Cumulative Effects**.
- 9.72 With regard to educational receptors, a primary school is proposed to be located within the approved South Heywood development (R19)⁶ to the north / north east of Assessment Boundary. A proposed development for a new (relocated replacement) school building and games areas associated with Unsworth Academy has also been considered (R18). The existing and proposed school buildings at Unsworth Academy are located beyond the M66 to the west.
- 9.73 As outlined in **Chapter 4: Development Specification – Project for Assessment** and shown on **Figure 4.3**, some existing buildings within the Assessment Boundary are proposed to be demolished. These receptors are presented separately in **Figure 9.1** and are retained for consideration in the event these could be present during the phased construction of the Project for Assessment.
- 9.74 For the purpose of this ES, receptors have been identified which are considered to be key receptors which would generally act as control points when considering receptors at further distances from the Assessment Boundary. The location of these sensitive receptors are presented in **Figure 9.1** with further description provided in **Appendix 9.1**. The sensitive receptors represent individual and groups of receptors.
- 9.75 A description of the receptors is presented in **Table 9.16** with retained receptors presented. This includes the proposed residential development within Assessment Plot FF (R16), the proposed residential development within South Heywood Development (R17) and a proposed school at the South Heywood Development (R19). As noted, depending on phasing, there may be other receptors which may require consideration during future planning applications. However, it is currently unknown whether such receptors would be present and require consideration. As such these receptors are referred to in high level terms as a proportionate approach.

Table 9.16: Receptor Locations Summary Table (Commercial / Industrial and Internal Access Roads Noise Sources)

Receptor Reference	Description
R1	Stock Nook
R2	New Gap Farm (Off Manchester Road)
R3	Cluster of Houses around Stock Nook (Off Doctor Fold Lane)
R4	Properties on Doctor Fold Lane (By access to R5)
R5	Lower Whittle Farmhouse

⁵ RBC, Application Ref: 16/01399/HYBR

⁶ BC, Application Ref: 70697

Receptor Reference	Description
R6	Cluster of Properties at Whittle Fold off Whittle Fold Lane
R7	Cluster of Properties off Moss Hall Road (opposite access to Pilsworth Fisheries)
R8	Pilsworth Fisheries
R9	Pilsworth Cottages off Castle Road
R10	Castle House off Castle Road
R11	Beck House off Griffie Lane (Including cluster of dwellings to the south)
R12	Egypt Farm off Egypt Lane
R13	Sandfield Farm (Beyond the M62)
R14	Dwellings on the edge of the settlement of Simister (Beyond the M62)
R15	Dwellings on the edge of Whitefield (Beyond M66)
R16	Proposed Residential Development Within Project for Assessment (Assessment Plot FF)
R17	Proposed Residential Development within South Heywood Development
R18	Unsworth Academy Playing Fields
R19	Proposed School South Heywood

9.76 Further sensitive receptors include residential premises located adjacent to the local road network in the wider study area. A hotel (Represented by notation Rc1 on **Figure 9.1**) is located adjacent to Pilsworth Road and the Assessment Boundary to the west of the M66.

9.77 An assessment has been undertaken with regard to the magnitude of change associated with operational road traffic noise for all receptors within the study area. This assessment has also informed a noise modelling exercise at sample reasonable worst-case residential receptor locations. **Figure 9.3** presents a receptor location plan with the receptors locations summarised in **Table 9.17**.

Table 9.17: Operational Road Traffic Noise Receptor Locations Summary Table

Receptor Reference	Description
TR1	2 Lord Street
TR2	Spring Hill (Off Heap Brow)
TR3	25 Moss Hall Road
TR4	Brook Cottage Moss Hall Road

Receptor Reference	Description
TR5	Jackson Fold Farm (Pilsworth Road between M66 J3 and Moss Hall Road)
TR6	7 Castle Road
TR7	16 Castle Road
TR8	Whippletree Cottage (Moss Hall Road within Assessment Boundary)
TR9a	Birch Cottage – eastern / northernmost cottage (within Assessment Boundary)
TR9b	2 The Boskins, Moss Hall Road (within Assessment Boundary)
TR9c	1 The Boskins, (Moss Hall Road within Assessment Boundary)
TR9d	Birch Cottage – westernmost cottage (Moss Hall Road within Assessment Boundary)
TR10	Bungalow, Coal Pits Farm (Moss Hall Road within Assessment Boundary)
TR11	Whittle Cottage (Off Whittle Lane)
TR12	Whittle Croft Cottage (Off Whittle Lane)
TR13	Whittle Fold Farm
TR14	The Grange (Off Whittle Lane)
TR15	Old Barn House (Off Whittle Lane)
TR16	747 Manchester Road
TR17a	763 Manchester Road
TR17b	Dwelling at Top O' Th' Hill (Off Manchester Road)
TR18	Siddal Farm
TR19	Farmstead off Middleton Road / Hollin Lane
TR20	278 Middleton Road
TR21	270 Middleton Road
TR22	266 Middleton Road
TR23	202 Middleton Road
TR24	212 Middleton Road
TR25	203 Middleton Road
TR26	18 Worthington Road
TR27	34 Worthington Avenue
TR28	216 Middleton Avenue

Receptor Reference	Description
TR29	249 Manchester Road
TR30	Doctor Fold Farm, Doctor Fold Lane
TR31	Lower Whittle Farmhouse

- 9.78 Further to residential receptors, LA111 provides examples of receptors which are sensitive to noise which includes hospitals, healthcare facilities, community facilities, international and national designated sites, public rights of way and cultural heritage assets. Such receptors are referred to in LA111 as 'other noise sensitive receptors'. Following an initial screening exercise and assessment presented in **Appendix 9.2**, it has been identified that the assessment of residential receptors would represent a reasonable worst-case assessment. However, a summary of likely effects at 'other noise sensitive receptors' is also presented in this Chapter.
- 9.79 An environmental noise survey has been undertaken at key locations during periods in August to October 2024. Attended and unattended measurements were obtained to define baseline noise levels within and around the Assessment Boundary at positions representative of identified noise sensitive receptors. The surveys undertaken are considered proportionate at this outline planning stage with survey details presented the noise technical report in **Appendix 9.1**.
- 9.80 The noise climate within and around the Project for Assessment were observed to be primarily influenced by road traffic noise. Relevant to the assessment at this stage with regard to the guidance provided within BS 4142 associated with sources of commercial / industrial noise, reference typical background noise levels have been established for each existing residential receptor which are presented in **Table 9.18**.

Table 9.18: Reference Background Noise Levels at Identified Residential Receptor Locations

Receptor Reference	Description	Reference Typical Existing Background Noise Level (dB $L_{A90,T}$)	
		Daytime	Night-time
R1	Stock Nook	43	38
R2	New Gap Farm (Off Manchester Road)	45	43
R3	Cluster of Houses around Stock Nook (Off Doctor Fold Lane)	45	43
R4	Properties on Doctor Fold Lane (By access to R5)	45	43
R5	Lower Whittle Farmhouse	54	51

Receptor Reference	Description	Reference Typical Existing Background Noise Level (dB L _{A90,T})	
		Daytime	Night-time
R6	Cluster of Properties at Whittle Fold off Whittle Fold Lane	46	42
R7	Cluster of Properties off Moss Hall Road (opposite access to Pilsworth Fisheries)	43	39
R9	Pilsworth Cottages off Castle Road	47	42
R10	Castle House off Castle Road	47	42
R11	Beck House off Griffe Lane (Including cluster of dwellings to the south)	45	40
R12	Egypt Farm off Egypt Lane	54	51
R13	Sandfield Farm (Beyond the M62)	54	51
R14	Dwellings on the edge of the settlement of Simister (Beyond the M62)	54	51
R15	Dwellings on the edge of Whitefield (Beyond M66)	47	42

Future Baseline

- 9.81 Without the implementation of the Project for Assessment the noise climate at and around the Assessment Boundary is likely to remain similar, i.e. principally influenced by road traffic noise.

Primary and Tertiary Mitigation

Construction Stage

- 9.82 The following primary and tertiary mitigation which has been evaluated as part of the construction stage assessment is outlined in the table below.
- 9.83 There are various noise and vibration control measures that could be considered to be industry standard and described as Tertiary Mitigation. Such measures would form part of Best Practice means that would be adopted as part of the EMP. However, there could be additional Secondary mitigation that could be specific to certain activities. Therefore, whilst Tertiary Mitigation is summarised in **Table 9.19**, mitigation measures identified with regard to the Construction Stage are also presented as Secondary Mitigation.

Table 9.19: Primary and Tertiary Mitigation to Inform Assessment of Construction Effects

Mitigation	Relevant to	
	Project for Assessment	Proposed Scheme
Construction noise and vibration will adopt Best Practicable Means (BPM), as defined in Section 72 of the Control of Pollution Act 1974	✓	✓

Operational Stage

9.84 The following primary and tertiary mitigation which has been evaluated as part of the operational stage assessment is outlined in the table below.

Table 9.20: Primary and Tertiary Mitigation to Inform Assessment of Operational Effects

Mitigation	Relevant to	
	Project for Assessment	Proposed Scheme
Landscape buffers have been incorporated within the Figures 4.1 and 5.1 around existing and proposed residential premises to provide a minimum buffer between proposed employment uses and residential receptors. Buffers presented within Assessment Plots outside of the Proposed Scheme are an assumptions and outside of the control of the Applicant.	✓	✓
Minimum 50m stand-off between the M66 and Assessment Plot FF (Figure 4.1) to provide a buffer to proposed residential premises. These assumptions on design have been necessary to inform the EIA.	✓	x

Assessment of Effects, Secondary Mitigation and Residual Effects**Construction Stage****Noise from construction works (Project for Assessment and Proposed Scheme)**

9.85 Typically, the most notable sources of noise during construction would be during periods of earthworks, construction of infrastructure and the construction of substructures. The level of noise will be dependent on the location of the construction activities on a daily basis and the equipment being used, with noise levels being attenuated as the distance between the source and receptor increases and the percentage on-time of the plant. It is considered

reasonable to assume that the worst case impacts would occur for temporary and short terms periods, typically within closer proximity of receptors.

- 9.86 LA111 provides guidance with regard to the study area for highway infrastructure schemes and states that '*a study area of 300m from the closest construction activities is normally sufficient to encompass noise sensitive receptors*'. Whilst this relates to highway infrastructure, it is considered that this would also be applicable with regard to non-highway infrastructure construction noise. **Figure 9.1** presents a visual representation of sensitive receptor locations and there are generally a relatively low number of receptors located within or around the Assessment Boundary.
- 9.87 For receptors R13 to R15 which represent residents on the edge of Simister and Whitefield, given their location on the opposite side of the M62 and M66 respectively and distance from the Assessment Boundary, these are not considered to be sensitive with respect to construction noise. Pilsworth Fisheries (R8) is located within proximity to the Application Boundary and at distances of over 300m from other Assessment Plots and Infrastructure Areas within the Project for Assessment. As such, it is considered that this receptor would only be relevant during construction works associated with the Proposed Scheme. Also given proximity to the M66 and existing noise levels being above the good practice guideline level for new schools of 55 dB $L_{Aeq,30mins}$ (as explained within **Appendix 9.1**, sourced from 'Acoustics for Schools: a design guide (November 2015)¹⁵'), the existing and proposed school playing fields at Unsworth Academy (R18) to the north of Assessment Area EE are not considered to be sensitive with respect to construction noise.
- 9.88 **Figure 9.1** includes receptors which may or may not be present when earthworks are being undertaken within 300m of their current location, e.g. the proposed school in the South Heywood development (R19) and proposed residential receptors within Assessment Area FF (R16). Similarly, there are receptors which are proposed to be demolished but may or may not be present during earlier phases of the Project for Assessment. These receptors are presented on **Figure 9.1** and, if present when construction works are occurring, may require consideration.
- 9.89 With regard to receptors which would not be represented by permanent residential buildings, in the wider study area, to the west of J3 of the M66, a hotel (Rc1) is located adjacent to the Project for Assessment Boundary off Pilsworth Road. It is understood that works in the area of the Project for Assessment to the west of M66, J3 would be proposed to facilitate smaller scale active travel features rather than larger scale roadworks.
- 9.90 Residential receptors are of medium sensitivity as are the temporary residential receptors at the hotel (Rc1) and the proposed school within the South Heywood Development (R19). Recreational facilities at Pilsworth Fisheries (R8) are of low sensitivity.
- 9.91 During some periods of the construction phase, particularly due to the substantial distances to receptors from the majority of areas within the Project for Assessment where works would occur, it is considered typical noise levels would be below the criteria adopted to represent SOAEL. During such periods the magnitude of impact would be negligible to small.
- 9.92 However, there will be works occurring at closer proximity to receptors during some parts of the construction phase. Based on professional judgement, it is considered likely that noise levels which could be above the SOAEL for typically short or sporadic periods of time.

Typically works would be undertaken during normal daytime working hours. The exception to daytime working would potentially be the infrastructure works along the M62 MAM and M66 J3, where there could be the likely requirement for work to occur outside of these periods including during the night-time. Therefore, to present a worst case, the magnitude of change is considered likely to be large during certain periods of the construction phase which would be likely to be temporary and short term in nature.

- 9.93 Specific references for residential receptors have not been presented in the summaries of pre-mitigation and residual effects below as a qualitative assessment has been undertaken rather than specific to a particular receptor which is proportionate at this assessment stage. Additionally, whilst effects would vary depending on, for instance, distance of works from receptors, the worst-case effect level has been summarised.
- 9.94 With respect to the Proposed Scheme, educational receptors (R19) are not considered to be impacted due to the distance from the Application Boundary.

Project for Assessment

- 9.95 The sensitivity of identified residential (all receptors), hotel (Rc1) and educational receptors (R19) are considered to be medium. The magnitude of change, as a reasonable worst-case, is considered to be large. Therefore, there is likely to be direct, temporary, short-term, adverse effect which is considered to be major.

Proposed Scheme

- 9.96 The sensitivity of identified residential receptors (all receptors) are considered to be medium. The magnitude of change, as a reasonable worst-case, is considered to be large. Therefore, there is likely to be direct, temporary, short-term, adverse effect which is considered to be major.
- 9.97 The sensitivity of recreational receptors at Pilsworth Fisheries (R8) are considered to be low. The magnitude of change is considered to be large. Therefore, there is likely to be direct temporary, short-term, adverse effect which is considered to be moderate.

Secondary Mitigation or Enhancement

Proposed Scheme

- 9.98 The CEMP will be developed and implemented by the appointed contractor and sub-contractors. In the absence of detailed information at this outline stage in relation to construction methods and programme, secondary mitigation measures specified below have been included as a 'tool kit' of mitigation examples of which would be specific to certain activities which is committed to, as and when the impacts are better understood. The recommended measures should not be regarded as an exhaustive list. Therefore, where relevant, the following measures should be considered the minimum additional mitigation required to control and minimise noise effects from such associated activities. Measures include:

- Selection of quietest working equipment available (e.g. electric/battery powered equipment which is generally quieter than petrol/diesel powered equipment);
- Positioning equipment behind physical barriers, i.e. existing features, hoarding, etc., or provision of lined and sealed acoustic covers for equipment that could potentially

contribute to a noise nuisance. Phasing or positioning works so that fixed or semi-static plant could be located behind stockpiles;

- Positioning of noise generating equipment, such as any processing plant including screens, shredders, crushers in areas which minimise noise as far as practicable;
- Directing noise emissions away from plant including exhausts or engines away from sensitive locations;
- Ensuring that regularly maintained and appropriately silenced equipment is used;
- Shutting down equipment when not in use, i.e. maintain a 'no idling policy';
- Handling all materials in a manner which minimises noise such as minimising drop heights;
- Should piling be carried out within close proximity to residential receptors, it should be undertaken by the method causing the minimum noise;
- Switch all audible warning systems to the minimum setting required by the Health and Safety Executive and use of broadband reverse warning alarms;
- For non-essential highways works, restricting hours of site operation in agreement with the Local Authorities. If there is the requirement to undertake work outside of the agreed hours, further consultation should be undertaken with the Local Authorities;
- Liaising with the occupants of adjacent properties affected by noise, informing them of nature of works, proposed hours of work and anticipated duration prior to commencement of activities. Details of neighbour liaison manager who would be responsible for dealing with any complaints should they arise.
- Phasing of work to prevent consecutive periods/durations where noise levels exceed the SOAEL. This is particularly relevant to night time workings.

9.99 These measures to be included within the CEMP can be secured through a suitable worded planning condition for the Proposed Scheme.

Project for Assessment

9.100 With regard to the development of other Assessment Plots associated with the Project for Assessment, the EMP also provides any associated additional CEMP commitments. The identified mitigation measures for Assessment Plots associated for the Project for Assessment would be comparable to that outlined for the Proposed Scheme for large elements of the construction works.

9.101 With respect to works on the M62 and potentially M66 J3, it would be expected that a Code of Construction Practice (CoCP) (or similar) would be provided to set out controls and management measures specific to the proposed works. For large infrastructure schemes, this may include the requirement for 'off-site' mitigation, depending on the identified effects. Whilst considered unlikely, this could be required where, despite the application of all reasonably practicable on-site mitigation measures being implemented, predicted noise

levels would be above agreed noise thresholds and temporal criteria. The CoCP would provide the means to implement a framework to determine eligibility for noise insulation and re-housing with such measures outlined within LA111. This would be undertaken as part of separate planning applications.

9.102 A summary of the proposed secondary mitigation is provided in the table below.

Table 9.21: Summary of Secondary Mitigation for Construction Stage (Noise)

Mitigation	Person Responsible	Secured by	Relevant to	
			Project for Assessment	Proposed Scheme
Noise control measures with reference to BS 5228:1 guidance	Contractor	CEMP / Planning Condition	✓	✓
Large highway infrastructure works: Noise control measures with reference to BS 5228:1 guidance	Contractor	CoCP	✓	✗

Residual Effect

9.103 It is likely that with the implementation of Secondary mitigation noise effects would reduce, particularly where activities would be of short term duration during normal working daytime periods along with effective community engagement. Where applicable, the reduction in effect level, is based on professional judgement rather than being qualified numerically which would not be feasible within the context of the outlined method.

9.104 This would also be considered to be applicable for large parts of works associated with other Assessment Plots within the Project for Assessment. However, with regard to construction works occurring within Proposed Infrastructure Area BBB and, potentially Area AAA, there is considered to be a greater degree of uncertainty as specific details are not available including likely duration of works within a particular area during the night-time. Therefore, there is less confidence in reducing the level of effect that would be applicable to all scenarios.

Project for Assessment

9.105 The residual effects for residential (all receptors), hotel (Rc1) and educational receptors are the same as that reported in the pre-mitigation scenario.

Proposed Scheme

9.106 The sensitivity of identified residential receptors (all receptors) are considered to be medium. The magnitude of change is considered to be medium (as a reasonable worst-case). Therefore, there is likely to be direct temporary, short-term, adverse effect which is considered to be moderate.

9.107 The sensitivity of recreational facilities at Pilsworth Fisheries (R8) are considered to be low. The magnitude of change is considered to be medium. Therefore, there is likely to be direct temporary, short-term, adverse effect which is considered to be minor.

Significance

9.108 It is considered that for the Project for Assessment, effects would be **Significant**.

9.109 It is considered that for the Proposed Scheme, effects would be **Not Significant**.

Vibration from construction works (Project for Assessment and Proposed Scheme)

9.110 The primary sources of vibration during construction would be anticipated to be driven piling, vibratory roller/compaction plant, surface breaking and bulldozer movements. Other sources of vibration would be present but are likely to generate lower levels of vibration. During earthworks, vegetation will be cleared and initial soils stripping/levelling/stock-piling would be undertaken. The tracking back and forth of a bulldozer is considered the most likely source of vibration during these works.

9.111 LA111 provides guidance with regard to the study area for highway infrastructure schemes and states that *'A study area of 100m from the closest construction activity with the potential to generate vibration is normally sufficient to encompass vibration sensitive receptors'*. Whilst this relates to highway infrastructure, it is considered that this would also be applicable with regard to non-highway infrastructure construction vibration. **Figure 9.1** presents a visual representation of sensitive receptor locations and there are a relatively low number of receptors located within or around the Assessment Boundary.

9.112 Based on professional judgement, it is considered likely that vibration levels could be above the SOAEL for typically short or sporadic periods of time when works are being undertaken in closer proximity to receptors. TRL Report 429⁷ contains historic data for a number of ground engineering works such as bulldozers. General engineering works undertaken at least 25m from a sensitive receptor are unlikely to generate PPV levels of 1mm/s or more which would constitute a negligible to small magnitude of change. Typically, it is considered that vibration levels would be below the LOAEL during the construction phase.

9.113 With regard to works which could generate higher level of vibration such as driven piling and vibratory rollers, specific details including working methods are unknown at this stage. Impacts associated with vibratory rollers are likely to be more transient for limited periods of time as the plant traverses past within close proximity to a receptor. Whilst being of intermittent nature, piling may occur over a longer period within a more defined area with, depending on the type of piling, impacts occurring at greater distances.

9.114 Therefore, to present a worst case scenario, it is assumed that works could be undertaken within close proximity to a receptor and that levels of vibration, unless suitably controlled, could be above the SOAEL adopted of 1mm/s PPV. Therefore, the magnitude of impact is considered likely to be large during certain periods of the construction phase.

9.115 With respect to educational receptors, R19 is not considered to be sensitive due to the distance over 100m from the Assessment Boundary.

9.116 Specific references for residential receptors have not been presented in the summaries of pre-mitigation and residual effects below as a qualitative assessment has been undertaken rather than specific to a particular receptor which is proportionate at this assessment stage.

⁷ Transport Research Laboratory, Groundborne vibration caused by mechanised construction works, 2000

Additionally, whilst effects would vary depending on, for instance, distance of works from receptors, the worst-case effect level has been summarised.

Project for Assessment

9.117 The sensitivity of identified residential receptors (all receptors) are considered to be medium. The magnitude of change is considered to be large. Therefore, there is likely to be direct temporary, short-term, adverse effect which is considered to be major.

Proposed Scheme

9.118 The effects for the identified receptors is the same as that reported for the Project for Assessment.

Secondary Mitigation or Enhancement

9.119 The over-arching method to control vibration will be similar to those set out in 'Construction Noise' for both the Proposed Scheme and Project for Assessment.

Proposed Scheme

9.120 Secondary mitigation measures specified below have been included as a 'tool kit' of mitigation examples of which would be specific to specific activities which is committed to, as and when the impacts are better understood.

- Should piling be carried out within close proximity to residential receptors, it should be undertaken by the method causing the minimum vibration;
- Ensuring that regularly maintained equipment is used;
- Vibratory compaction equipment should be used in a mode which minimises the incident vibration at nearby residential and other sensitive properties;
- The use of smaller equipment, or turning off the mechanical vibration on vibratory rollers and undertaking more passes for areas where there is a particular risk that disruption may occur at neighbouring properties;
- Control of working hours and community engagement are the same as noise; and
- Where feasible, for highway works, activities that are likely to cause the highest levels of vibration should be undertaken during the daytime period.

9.121 These measures to be included within the CEMP can be secured through a suitable worded planning condition for the Proposed Scheme.

Project for Assessment

9.122 As with noise, with regard to the development of other Assessment Plots associated with the Project for Assessment, the EMP also provides any associated additional CEMP commitments. The identified mitigation measures for Assessment Plots associated for the Project for Assessment would be comparable to that outlined for the Proposed Scheme for large elements of the construction works.

9.123 With respect to works on the M62 and potentially around M66 J3, it would be expected that a Code of Construction Practice (CoCP) (or similar) would be expected to be provided to set out controls and management measures specific to the proposed works.

9.124 A summary of the proposed secondary mitigation is provided in the table below.

Table 9.22: Summary of Secondary Mitigation for Construction Stage (Vibration)

Mitigation	Person Responsible	Secured by	Relevant to	
			Project for Assessment	Proposed Scheme
Vibration control measures with reference to BS 5228 guidance	Contractor	CEMP / Planning Condition	✓	✓
Large highway infrastructure works: Vibration control measures with reference to BS 5228 guidance and LA111	Contractor	CoCP	✓	✗

Residual Effect

- 9.125 With respect to defining whether effects are likely to be Significant or Not Significant, further context is provided within BS 5228:2. At PPV levels of 1 mm/s, BS 5228:2 states that *'It is likely that vibration of this level in residential environments will cause complaint, but can be tolerated if prior warning and explanation has been given to residents'*. At PPV levels of 10 mm/s, *'vibration is likely to be intolerable for any more than a very brief exposure to this level in most building environments'*. Therefore, with effective community engagement in the most sensitive situations, there is the likelihood that vibration levels which are higher than 1mm/s (the adopted SOAEL) could be tolerated. Additionally, BS 5228:2 states that single or infrequent occurrences of these levels do not necessarily correspond to the stated effect in every case with it being considered unlikely that the extent of the works would be in excess of the temporal criteria. This does not negate the requirement to use BPM but provides context that vibration levels above the SOAEL do not necessarily constitute an effect which is Significant.
- 9.126 It is likely that with the implementation of secondary mitigation, noise effects would reduce, particularly where activities would be of short term duration during normal working daytime periods along with effective community engagement. Where applicable, the reduction in effect level, is based on professional judgement rather than being qualified numerically which would not be feasible within the context of the outlined method.
- 9.127 This would also be considered to be applicable for the Proposed Scheme and large parts of works associated with other Assessment Plots within the Project for Assessment. However, with regard to construction works occurring within Proposed Infrastructure Area BBB and, potentially Area AAA, there is considered to be a greater degree of uncertainty as specific details are not available including likely duration of works within a particular area during the night-time. Therefore, there is less confidence in reducing the level of effect that would be applicable to all scenarios.

Project for Assessment

- 9.128 The residual effects for residential receptors (all receptors) is the same as that reported in the pre-mitigation scenario.

Proposed Scheme

- 9.129 The sensitivity of identified residential receptors (all receptors) are considered to be medium. The magnitude of change is considered to be medium (as reasonable worst-case). Therefore, there is likely to be direct temporary, short-term, adverse effect which are considered to be moderate.

Significance

- 9.130 It is considered that for the Project for Assessment, effects would be **Significant**.
- 9.131 It is considered that for the Proposed Scheme, effects would be **Not Significant**.

Construction Traffic Noise [Project for Assessment and Proposed Scheme]

- 9.132 Large changes in traffic flow are required to result in perceptible changes to road traffic noise levels. Assuming HGV and vehicle speeds remain broadly comparable, an increase in traffic of less than 25% would be equivalent to a change of up to 1 dB which represents a negligible impact with an increase of 100% being equivalent to a change of up to 3 dB which represents a small impact.
- 9.133 In general, there are large existing volumes of traffic including HGV's on the local and strategic road network around the Project for Assessment. Based on a summary of the results of the operational road traffic noise assessment presented in **Appendix 9.2** and summarised further on in this Chapter, regarding the short term scenario, the change in the basic noise level on the majority of links in the operational phase is predicted to be less than 3dB. The volume of construction traffic during peak construction periods would be less than operational traffic. Therefore, generally, the magnitude of change associated with construction traffic would be no more than small (adverse).
- 9.134 In the operational phase (with the assessment presented further on in this Chapter), there are increases greater than 3 dB predicted on Moss Hall Road adjacent to a cluster of residential receptors (represented by receptor R7 on **Figure 9.1**) as well as Pilsworth Road (to the south of R5). This is on the basis that construction traffic access will be from the existing Moss Hall Road route via the Moss Hall Road / Pilsworth Road junction to the north. On Moss Hall Road, in the 2024 baseline, the 18hr Annual Average Weekday Traffic (AAWT) two way flow is approximately 4,700 including approximately 350 HGV's. On Pilsworth Road, over the course of the construction phase relating to the Project for Assessment, there would be varying levels of construction traffic which would depend on the size of the phase and whether phases are being constructed in combination. However, it is considered reasonable to assume that there would not be a 100% increase in either total flow or number of HGV's on a given day during the construction phase of the Proposed Scheme. Therefore, the change in noise level would be predicted to be less than 3 dB with the magnitude of change being no more than small (adverse). This is also considered to be relevant to 'standard' construction works associated with the majority of other Assessment Plots associated with the Project for Assessment.
- 9.135 For large scale infrastructure schemes, such as that envisaged for works on the M62, there is the likelihood that these works would be associated with higher construction traffic levels

volumes. Access to infrastructure areas AAA-CCC and AAAA are assumed to have their own independent access points from primary and secondary access corridors determined when site construction management and programming plans are developed and compound locations fixed.

- 9.136 A further consideration relating to works being undertaken on the strategic road network, particularly for large infrastructure schemes, is the likely requirement for partial or full closures of carriageways during night-time hours. LA111 states that the sudden change in traffic flow on the local road network due to night-time closures is highly likely to cause disruption next to (within 25m) of the road. Therefore, the magnitude is considered to be: small adverse for 'standard' construction traffic relating to the Project for Assessment; and, at residential receptors, large (adverse) relating to construction traffic noise associated with highway infrastructure works in Potential Infrastructure Areas BBB and, potentially, AAA.
- 9.137 Specific references for residential receptors have not been presented in the summaries of pre-mitigation and residual effects below as a qualitative assessment has been undertaken rather than specific to a particular receptor which is proportionate at this assessment stage.
- 9.138 There could be other receptors present but the assessment considers residential receptors as a worst-case.

Project for Assessment

- 9.139 The sensitivity of residential (all receptors) are considered to be medium. For traffic associated 'standard' construction works within Assessment Plots, the magnitude of change is considered to be small. Therefore, there is likely to be direct temporary, short-term, adverse effect which is considered to be minor.
- 9.140 For traffic associated with infrastructure construction works in Potential Infrastructure Areas AAA-CCC, the magnitude of change is considered to be large. Therefore, there is likely to be direct temporary, short-term, adverse effect which is considered to be major.

Proposed Scheme

- 9.141 The sensitivity of residential (all receptors) receptors are considered to be medium. The magnitude of change is considered to be small. Therefore, there is likely to be direct temporary, short-term, adverse effect which is considered to be minor.

Secondary Mitigation or Enhancement

Project for Assessment

- 9.142 For infrastructure works which necessitate the requirement for diversion routes during the night-time, where feasible, the temporal scope should be minimised as far as practicable. As such it is considered likely that significant effects could be avoided.

Proposed Scheme

- 9.143 No secondary mitigation or enhancement has been identified with respect to the Proposed Scheme.

Residual Effect

- 9.144 With regard to construction traffic associated within Proposed Infrastructure Area BBB and, to a lesser extent Area AAA, there is considered to be a greater degree of uncertainty in

terms of what could be implemented. Therefore, there is less confidence in reducing the level of effect that would be applicable to all scenarios.

Project for Assessment

9.145 In the absence of defined Secondary mitigation the residual effects for residential (all receptors) is the same as that reported in the pre-mitigation scenario.

Proposed Scheme

9.146 The residual effects for residential receptors (all receptors) is the same as that reported in the pre-mitigation scenario.

Significance

9.147 It is considered that for the Project for Assessment, effects would be **Significant**.

9.148 It is considered that for the Proposed Scheme, effects would be **Not Significant**.

Operational Stage

Noise from proposed commercial and industrial uses [Project for Assessment and Proposed Scheme]

9.149 As the Project for Assessment is outline in nature, there are no fixed details of buildings or exact locations of noise generating sources. The design of buildings and other features is a matter to be considered in detail at the reserved matters stage for each Application or Assessment Plot. Also the exact nature of the activities associated with the Project for Assessment that would occur during the operational phase would not be known until the operators are confirmed.

9.150 There are residential receptors located within close proximity to the Assessment Boundary as well as a proposed primary school within the South Heywood development (R19). These receptors are shown on **Figure 9.1** with further discussion presented within **Appendix 9.1**. Whilst it has been identified the existing and replacement school playing fields (R18) are located adjacent to the Assessment Boundary, due to the proximity to the M66, this receptor location (R18) has not been considered further. This is on the basis that existing ambient noise levels are high at this receptor and already above the guideline good practice criteria of 55 dB $L_{Aeq,30mins}$ stated within the 'Acoustics for Schools: a design guide' as outlined in **Appendix 9.1**.

9.151 For the assessment of noise from industrial and commercial sources, typically an assessment in relation to residential receptors would be undertaken with regard to the guidance provided within BS 4142. With regard to other noise sensitive receptors which include the proposed primary school (R19) and recreational receptors at Pilsworth Fisheries (R8), potential impacts would be assessed within the context of other guidance documents where relevant such as the WHO Guidelines as well as absolute noise levels. Impacts could arise from various types of noise sources including deliveries, servicing, noise breakout from buildings and building services plant.

9.152 This would be also relevant to sources such as waste facilities. However, it should be noted that the sources of noise would be specific to the actual operations which is unlikely to be known until an operator is present (such as location, type of activities, hours of operation) which could be of relevance to such sources. Often the principal source of noise from such facilities is attributable to processing activities.

- 9.153 At this stage, it is not feasible to undertake a proportionate and meaningful assessment. However, given the proximity of noise sensitive receptors, based on professional judgement, it is considered reasonable to conclude that there could be large adverse impacts in the un-mitigated scenario. Aligning with the approach and rationale presented in **Appendix 9.1**, the summary of effects is based on specific receptor locations for both the Project for Assessment and Proposed Scheme.

Project for Assessment

- 9.154 The sensitivity of residential receptors (R1 to R5 and R7, R9 to R17) and educational receptors (R19) are considered to be medium. For clarity, receptors R16 and R17 represent expected future residential receptors which are not currently present. The magnitude of change is considered to be large. Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be major.

Proposed Scheme

- 9.155 The effects for residential receptors (R1, R4 to R11 and R13) is that same as that reported for the Project for Assessment.
- 9.156 The sensitivity of recreational facilities at Pilsworth Fisheries (R8) are considered to be low. The magnitude of change is considered to be large. Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be moderate.

Secondary Mitigation or Enhancement

Proposed Scheme

- 9.157 At this outline stage, there are no fixed details of buildings or exact locations of noise generating sources. The design of buildings and other features is a matter to be considered detail during future planning applications. With regard to Secondary mitigation, there are numerous measures which could inter-relate and feed into the design of the Project for Assessment to control noise.
- 9.158 The results of the noise survey have been used to inform the assessment undertaken and identify outline noise criteria at sensitive receptor locations which are presented in Tables 4.1 and 4.2 in **Appendix 9.1**. Noise data was collected over a number of days at a large number of locations within the Project for Assessment and a conservative approach has been taken with regard to establishing noise criteria which minimises uncertainty of the measurement. Given the scale and outline nature of the Project for Assessment, outline criteria has been presented which forms the basis of a Framework that the Proposed Scheme and Project for Assessment will be designed to. It is not considered that the criteria is a fixed limit as, the BS 4142 assessment methodology provides emphasis on incorporating context in determining the final impact outcome, which would not be commensurate at this stage. As part of noise assessments undertaken at future Reserved Matters stage, a deviation from the criteria stated could be appropriate, if suitably justified. The requirement to undertake an assessment in accordance with BS 4142 at Reserved Matters Stage can be secured by planning condition. This would also enable consideration of contextual matters to be taken into account, which as advised in BS 4142 is an 'essential part of any assessment.'
- 9.159 The above criteria will be used as an outline with respect to the design of the Proposed Scheme. This would also apply to other Assessment Plots within the Project for Assessment. Prior to each phase of the development a detailed assessment should be carried out, which

would include an updated noise survey at noise sensitive receptors where considered relevant, full assessment of the potential impacts based on the approach discussed above and identification of mitigation measures to control any potential noise impact.

9.160 As part of assessments to inform the detailed design on a Plot by Plot basis, the following mitigation measures will be included, where relevant, in the design of Application Plots within the Proposed Scheme. These measures would also be relevant to the Project for Assessment. As noted these measures could be suitable in isolation or as a suite of measures depending on specific circumstances:

- Design of the Proposed Scheme to comply with the noise criteria stated in Table 4.1 (Sources of Commercial and Industrial Noise) and Table 4.2 (fixed building services plant) in **Appendix 9.1**. Where a deviation from the criteria is proposed this should be suitably justified within the context of the guidance provided within BS 4142;
- An example of a deviation from the criteria would be for plant such as reserve power generators which would only operate in an emergency or scheduled short duration testing;
- A greater stand-off from receptors in addition to those included as Primary Mitigation (**Figure 4.1**);
- Locating less 'noisy' development within closer proximity to noise sensitive receptors, for instance E(g) use;
- Orientating service yards on the rear side of buildings away from residents (i.e. the building provides the barrier) typically provides the highest degree of attenuation. Screening by buildings would also be expected to be of benefit to internal access roads and access routes to yards;
- Provision of acoustic grade barriers between noise sources and receptors. The principle relating to barriers is to provide direct line of sight screening between a source and receptor (including upper storey habitable rooms). Typically, a greater degree of attenuation would be expected if a barrier was closer to either the source or receiver rather than somewhere in the middle. Where specified, barriers should be in the form of walls or close-boarded fences which are of solid construction, with no air gaps, and a minimum mass of 10 kg/m²;
- Restricting hours for trading and / or deliveries;
- Control of building services plant equipment; and
- Depending on the proposed uses, noise breakout from buildings may need to be considered. Measures to control noise breakout could include measures such as the sound insulation performance of the building fabric.

9.161 It should be noted that the noise criteria relates to noise emissions from corresponding sources for the whole of the Proposed Scheme. Therefore, noise from individual Plots would need to take into account the cumulative effects of noise. This could be demonstrated where noise from each unit or plot being designed to 10 dB below the noise criteria. It is not considered that this should be used as a design recommendation as this could lead to over

design and overly restrictive / unnecessary controls. However, this provides a guide for an option for an assessment of individual units or Plots in isolation in the future.

- 9.162 Taking into account available mitigation measures, as identified above, it is considered that the Proposed Scheme could be designed to avoid significant adverse effects in line with the policy aims of the NPPF. The requirement to consider appropriate noise mitigation associated with the proposed employment uses can be secured by way of a planning condition.

Project for Assessment

- 9.163 The principles outlined above would also be relevant to other Assessment Plots within the Project for Assessment.

Table 9.23: Summary of Secondary Mitigation for Operational Stage

Mitigation	Person Responsible	Secured by	Relevant to	
			Project for Assessment	Proposed Scheme
Noise control at source or between source and receptor (Measures identified above)	Applicant / future applications	Planning Condition	✓	✓

Residual Effect

- 9.164 Through the incorporation of appropriate mitigation measures, designing the Proposed Scheme to comply with the outline design criteria, subject to context, the magnitude of change would be reduced to negligible to small (adverse) at residential receptors and negligible at Pilsworth Fisheries (R8). This is based on professional judgement relating to the residual magnitude of change rather than based on a specific reduction in numerical value defined by **Table 9.10** due to the importance to taking into account context as previously demonstrated. These principles are also considered to apply to the Project for Assessment.

Project for Assessment

- 9.165 The sensitivity of residential (R1 to R5 and R7, R9 to R17) and educational receptors (R19) are considered to be medium. The magnitude of change is considered to be small. Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be minor.

Proposed Scheme

- 9.166 The effects for residential receptors (R1, R4 to R11 and R13) are that same as that reported for the Project for Assessment.
- 9.167 The sensitivity of recreational receptors at Pilsworth Fisheries (R8) are considered to be low. The magnitude of change is considered to be negligible. Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be negligible.

Significance

- 9.168 This effect is considered to be **Not Significant** for the Project for Assessment and the Proposed Scheme.

Noise from energy infrastructure: Providing Power to the Project for Assessment [Project for Assessment and Proposed Scheme]

- 9.169 The Project for Assessment will be all-electric, (although there may be certain processes that require gas or oil). The source of electricity will likely be from a mix of sources, predominantly provided by on-site solar energy utilising the expansive roof areas of B2/B8 development. There is potential for the Project for Assessment to generate renewable energy through roof mounted wind power as well as potential for micro-hydrogen.
- 9.170 It is also assumed that four primary substations will be required. Potential sources of noise would be expected to include transformers and air handling fans. On modern substations, it is assumed that noise from the cooling fans would be the dominant noise source with noise from the transformers controlled at source. However, with regard to transformer noise, consideration may be necessary to consider low frequency noise (100 Hz).
- 9.171 The detailed design information is currently unknown, including the exact type of infrastructure proposed and location. Receptors are considered to correspond to those identified within the assessment of 'Noise from proposed commercial and industrial uses' presented above. To present a reasonable worst-case, as receptors are located within proximity to the Application Boundary and Assessment Boundary, it is considered reasonable to conclude that there could be large adverse impacts in the un-mitigated scenario.

Project for Assessment

- 9.172 The sensitivity of residential (R1 to R5 and R7, R9 to R17) and educational receptors (R19) are considered to be medium. The magnitude of change is considered to be large. Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be major.

Proposed Scheme

- 9.173 The effects for residential (R1, R4 to R11 and R13) receptors are the same as that reported for the Project for Assessment.
- 9.174 The sensitivity of recreational facilities at Pilsworth Fisheries (R8) are considered to be low. The magnitude of change is considered to be large. Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be moderate.

Secondary Mitigation or Enhancement

Proposed Scheme

- 9.175 Typically noise sources that would be akin to plant equipment would be assessed in accordance with BS 4142 and would fall under the umbrella for the outline noise criteria outlined in Tables 4.1 and 4.2 (**Appendix 9.1**) along with the associated caveats. With regard to transformers, consideration may be necessary to consider low frequency noise (100 Hz).
- 9.176 With regard to roof mounted wind power, the type of roof mounted wind power units and locations are currently unknown, therefore, it is not considered appropriate at this stage to set outline criteria. Given the large separation distances from areas within the Project for Assessment from receptors, it would be reasonable to assume that options for renewable

energy could be accommodated within the Site, however, careful consideration is likely to be required at closer proximity to identified receptors.

9.177 As part of assessments to inform the detailed design associated with proposed energy infrastructure, the following mitigation measures provide recommendations which could be considered, where relevant, in the design of Plots within the Proposed Scheme. As noted these measures could be suitable in isolation or as a suite of measures depending on specific circumstances:

- Design of the Proposed Scheme to comply with the noise criteria stated in Table 4.2 (fixed building services plant) in **Appendix 9.1**. Where a deviation from the criteria is proposed this should be suitably justified within the context of the guidance provided within BS 4142. This only relates to sources that fall within the scope of BS 4142;
- Stand-off distance to receptors;
- Provision of acoustic grade barriers between noise sources and receptors;
- Control of plant equipment at source; and
- Depending on the proposed uses, noise breakout from buildings may need to be considered. Measures to control noise breakout could include measures such as the sound insulation performance of the building fabric.

9.178 Taking into account available mitigation measures, as identified above, it is considered that the Proposed Scheme could be designed to avoid significant adverse effects and minimise adverse effects. The requirement to consider appropriate noise mitigation associated with the proposed employment uses can be secured by way of a planning condition.

Project for Assessment

9.179 These measures would also be relevant to the Project for Assessment.

Table 9.24: Summary of Secondary Mitigation for Operational Stage

Mitigation	Person Responsible	Secured by	Relevant to	
			Project for Assessment	Proposed Scheme
Noise control at source or between source and receptor (Measures identified above)	Applicant / future applications	Planning Condition	✓	✓

Residual Effect

9.180 Through the incorporation of appropriate mitigation measures, designing the Proposed Scheme to comply with the outline design criteria, subject to context, the magnitude of change would be reduced to negligible to small adverse at residential receptors and negligible at Pilsworth Fisheries (R8). This is based on professional judgement relating to the residual magnitude of change rather than based on a specific reduction in numerical value,

including values defined by **Table 9.10**. These principles are also considered to apply to the Project for Assessment.

Project for Assessment

- 9.181 The sensitivity of residential (R1 to R5 and R7, R9 to R17) and educational receptors (R19) are considered to be medium. The magnitude of change is considered to be small. Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be minor.

Proposed Scheme

- 9.182 The effects for residential receptors (R1, R4 to R11 and R13) are the same as that reported for the Project for Assessment.
- 9.183 The sensitivity of recreational receptors at Pilsworth Fisheries (R8) are considered to be low. The magnitude of change is considered to be negligible. Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be negligible.

Significance

- 9.184 This effect is considered to be **Not Significant** for the Project for Assessment and the Proposed Scheme.

Noise from general activities (Vehicle movements on the internal access roads and car parking)

- 9.185 The assessment of transportation noise associated with the proposed primary internal access roads could be assessed against existing ambient noise levels and absolute noise level criteria relevant to this type of noise sources. It is not possible to undertake a detailed assessment at this stage as the alignment and proposed ground levels of the internal road network within the Project for Assessment is subject to detailed design. Additionally, screening that may be available from future buildings within the Assessment Boundary, may reduce noise levels.
- 9.186 A summary is presented for all receptors, as it is considered that within the context of receptor locations, effects associated from internal access roads would be attributable to localised effects associated with either the Project for Assessment. It is considered that this would be applicable to residential receptors and Pilsworth Fisheries.
- 9.187 Receptors are considered to correspond to those identified within the assessment of 'Noise from proposed commercial and industrial uses' presented above. To present a reasonable worst-case, as receptors are located within proximity to the Application Boundary and Assessment Boundary, it is considered reasonable to conclude that there could be large adverse impacts in the un-mitigated scenario. Whilst effects would vary depending on, for instance, distance of works from receptors, the worst-case effect level has been summarised.

Project for Assessment

- 9.188 The sensitivity of residential (R1 to R5 and R7, R9 to R17) and educational receptors (R19) are considered to be medium. The magnitude of change is considered to be large. Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be major.

Proposed Scheme

- 9.189 The effects for residential (R1, R4 to R11 and R13) are the same as that reported for the Project for Assessment.

- 9.190 The sensitivity of recreational facilities at Pilsworth Fisheries (R8) are considered to be low. The magnitude of change is considered to be large. Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be moderate.

Secondary Mitigation or Enhancement

Proposed Scheme

- 9.191 At this outline stage, there are no fixed details of buildings or exact locations of internal access roads or car parks. The design of buildings and other features is a matter to be considered in outline or detail during future planning applications.
- 9.192 As part of assessments to inform the detailed design associated with proposed internal access roads, the following mitigation measures provide recommendations which will be considered, where relevant, in the design of Plots within the Proposed Scheme. As noted these measures could be suitable in isolation or as a suite of measures depending on specific circumstances:
- The noise criteria in **Table 9.11** could be used to inform the design of internal access roads and car parks. An aim should be for noise attributable to internal roads to not exceed 50 dB $L_{Aeq,16hours}$ during the daytime and 45 dB $L_{Aeq,8hours}$ during the night-time which represent the LOAEL. Where this is not practicable, an upper criteria should be to not exceed 60 dB $L_{Aeq,16hours}$ during the daytime and 55 dB $L_{Aeq,8hours}$ during the night-time which represents the SOAEL. Additional context could be provided with a comparison of the change in noise level when compared to existing ambient noise levels which could be appropriate where existing noise levels are above the presented absolute thresholds;
 - For car parking, to represent sudden noises, an aim would be to meet a criteria of 60 dB L_{Amax} . Where this is not practicable, the aim should be to not exceed 70 dB $L_{Aeq,16hours}$ during the night-time which represents the SOAEL;
 - Stand-off from receptors in addition to Primary Mitigation; and
 - Inclusion of screening from barriers such as earth bunds, acoustic grade fences and / or proposed buildings.
- 9.193 Taking into account available mitigation measures, as identified above, it is considered that the Proposed Scheme could be designed to avoid significant adverse effects and minimise adverse effects. The requirement to consider appropriate noise mitigation associated with the proposed employment uses can be secured by way of a planning condition.

Project for Assessment

- 9.194 These measures would also be relevant to the Project for Assessment.

Table 9.25: Summary of Secondary Mitigation for Operational Stage

Mitigation	Person Responsible	Secured by	Relevant to	
			Project for Assessment	Proposed Scheme
Noise control at source or between source and receptor (Measures identified above)	Applicant / future applications	Planning Condition	✓	✓

Residual Effect

9.195 Through the incorporation of appropriate mitigation measures, where deemed necessary, designing the Proposed Scheme to comply with the outline design criteria, subject to context, the magnitude of change would be reduced to, as a worst-case, medium (adverse) at residential receptors and minor (adverse) at Pilsworth Fisheries (R8). This is based on professional judgement relating to the residual magnitude of change rather than based on a specific reduction in numerical value. These principles are also considered to apply to the Project for Assessment.

Project for Assessment

9.196 The sensitivity of residential (R1 to R5 and R7, R9 to R17) and educational receptors (R19) are considered to be medium. The magnitude of change is considered to be medium. Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be moderate.

Proposed Scheme

9.197 The effects for residential receptors (R1, R4 to R11 and R13) are the same as that reported for the Project for Assessment.

9.198 The sensitivity of recreational receptors at Pilsworth Fisheries (R8) are considered to be low. The magnitude of change is considered to be small. Therefore, there is likely to be a direct, permanent, long-term, adverse effect which is considered to be minor.

Significance

9.199 This effect is considered to be **Not Significant** for the Project for Assessment and the Proposed Scheme.

Noise from development generated road traffic and new highway infrastructure (Proposed Scheme and Project for Assessment)

9.200 The Project for Assessment has the potential to affect levels of noise at receptors within and around the boundaries of the Potential Infrastructure Areas as well along the local and strategic road network as a result of changes in traffic flows and construction of new or improved highway infrastructure. An assessment was therefore undertaken in order to assess changes in road traffic noise levels as well as, with respect to Potential Infrastructure Area BBB. This assessment has been informed by BNL calculations and noise modelling.

9.201 Reference should be made to **Appendix 9.2** for full details of the assessment undertaken and the results.

9.202 To aid with proportionality, a greater level of detail has been provided in this Chapter for those receptors which are likely to experience a significant effect prior to the implementation of secondary mitigation. However, this level of detail is provided for all receptors within **Appendix 9.2**.

Change in noise level on links within study area

9.203 The operational road traffic noise assessment has been undertaken based on the scenarios presented in **Table 9.4**. BNL calculations have been undertaken on all links within the study area with the results summarised as follows with the corresponding receptor (all receptors) sensitivity being medium.

- There are a large number of roads where the magnitude of change is negligible in the short term and long term. In summary, negligible changes are predicted along; the M62, M66 and M60 motorways; roads to the west of M66 J3 (with the exception of Castle Road as explained previously); roads leading off the South Heywood Link Road (SHLR) to the north east including Manchester Road (A6045); roads to the north of M62 J19 including Middleton Road; and roads to the south of the Project for Assessment towards Simister including Manchester Road (A6045). Effects are considered to be negligible. No further assessment of these links has been undertaken.
- Along the SHLR corridor (Queen Elizabeth Way, Hareshill Road and Pilsworth Road) in the 2032 short term scenario without the M62 MAM, the magnitude of change is predicted to be small. For the with M62 MAM scenario, the magnitude of change reduces to negligible to small beneficial. In the long term, the magnitude of change is negligible. Effects in the short term range from minor beneficial to minor adverse. In the long term, effects are considered to be negligible. No further assessment of these links has been undertaken.
- Along Moss Hall Lane and Heap Brow to the north of the Project for Assessment, the magnitude of change is predicted to be small adverse in the short and long term for all assessed scenarios. This is with the exception of the 2032 short term scenario with the M62 MAM where the magnitude of change increases from negligible to small. With regard to the 2024 sensitivity test of the Project for Assessment in isolation, a medium adverse change is predicted (during the night-time) in the long term scenario. Therefore, further assessment has been undertaken along this corridor.
- Along Moss Hall Road adjacent to receptors TR8 to TR10, **Figure 9.3**, the magnitude of change is up to large adverse in this short term and up to medium adverse in the long term. Therefore, further assessment has been undertaken along this corridor.
- Following the opening of the M62 MAM, a large adverse change in the short term and medium adverse change in the long term is predicted along Moss Hall Lane / Whittle Lane to the south of the access to Birch Industrial Estate. There are two residential premises along this link which are proposed to be demolished as part of the Proposed Scheme. However, the change aligns with the introduction of the M62 MAM and due to phasing the increase in traffic along this link would occur once these receptors are not present. Therefore, no further assessment has been undertaken.

- A sensitivity test associated with a potential future vehicular connection between the South Heywood Masterplan Area and the wider JPA1.1 Allocation Site within Potential Infrastructure Area CCC has been undertaken. The magnitude of change in the long term has been identified as being negligible. Effects are therefore, considered to be negligible. Therefore, no further assessment has been undertaken.

9.204 Based on the outcome of the assessment, further analysis including noise modelling has been undertaken with respect to receptors within proximity to Potential Infrastructure Areas AAA and BBB; the Moss Hall Lane / Heap Brow corridor; and Castle Road.

Noise modelling

9.205 The results of the noise modelling exercise is presented as follows and reference should be made to **Figure 9.3**. It is based on the outlined methodology which includes:

- Representative receptors within 600m of the Potential Infrastructure Assessment Area BBB;
- Reasonable worst-case receptors along Moss Hall Road / Heap Brow (TR1 to TR4) and a single receptor along Pilsworth Road (TR5) to the north of the Potential Infrastructure Assessment Area AAA [With the exception of Castle Road, the magnitude of change on road links to the west of the M66 are negligible and these links have been screened out];
- Reasonable worst-case receptors along Castle Road (TR6 and TR7). The receptors have been chosen to include; a representative receptor location on the northern side of Castle Road (R6); and a representative receptor location (TR7) on the southern side of the road. This is due to the expected contribution of the M66 to be lower due to building orientation / screening and thus the change expected in relation to the Project for Assessment would be expected to be greater.

9.206 The magnitude of change is predicted to be negligible at a large number of receptors in both the short term and long term for all scenarios. These receptors include TR5, TR6, TR11 to TR13, TR17a, TR18 to TR22, TR25 to TR27 and TR29 to TR30. Effects are considered to be negligible.

9.207 TR5 is located to the north of Pilsworth Road and the Potential Infrastructure Area AAA. As the modelled DS scenario's include a re-alignment of Pilsworth Road, a sensitivity test has been undertaken using the 2024 sensitivity test scenario data based on the existing alignment of Pilsworth Road. In this scenario, the magnitude of change is predicted to be small (+3.2 dB) in the long term and effects would be considered to be minor (adverse).

9.208 With regard to TR7 along Castle Road, it would be assumed that the build out of the residential development in Assessment Area FF would be phased over the medium term. As a more stringent assessment, a comparison of the short term assessment criteria of the 2024 Base with the 2024 With Dev scenario which includes the full build out of the residential development has been undertaken and the magnitude of change is predicted to be small in the short term. Effects are therefore considered to be minor (adverse).

9.209 At other assessed residential receptors within the study area, effects are predicted to be either moderate to major (adverse) or, during the short term, the change in noise level is

greater than 1.0 dB following the opening of the M62 MAM. The links where such effects are predicted to occur are described under a) to c) follows.

a) Along Moss Hall Road within the Assessment Boundary (TR8 to TR10)

- 9.210 Prior to the opening of the MAM, the magnitude of change in the short term is medium (adverse). At one receptor (TR9b) in the night-time 2024 short term sensitivity test, the magnitude of change is large (adverse). However, the change is only fractionally above the medium to large boundary (+0.2dB) with, as stated previously, a more stringent approach having been undertaken as effects associated with this scenario would be considered to be medium term. Therefore, effects considered to be moderate (adverse). In the long term, the magnitude of change ranges between small to medium (adverse) depending on distance from the road. Effects are therefore considered to range between minor to moderate (adverse).
- 9.211 'With' the M62 MAM, the magnitude of change generally reduces in the short term assessment scenario to small adverse. In the 2024 long term sensitivity test, at two receptors (TR9b and TR9d which are closest to Moss Hall Road) during the night-time period, the magnitude of change remains medium (adverse). Therefore, effects are considered to range between minor and moderate (adverse). In the long term the magnitude change is small (adverse) with the exception of receptors TR9b and TR9d in the 2024 sensitivity test, where the magnitude of change is medium (adverse). Therefore, effects are considered to range between minor to moderate adverse.
- 9.212 Effects which are Significant are therefore predicted in the short term prior to the opening of the M62 MAM and, at two receptors, in the long term when considering the 2024 sensitivity test.

b) Along Moss Hall Road / Heap Brow to the north of the Fowler Welch junction up to the A58 (TR1 to TR4).

- 9.213 The magnitude of change ranges from negligible to small (adverse) in both the short term and long term. Therefore, effects are considered to range between negligible to minor (adverse).
- 9.214 In the short term, with regard to the introduction of the M62 MAM, when considering the difference between the predicted noise level in the 2032 DS 'without' the M62 MAM and 'with' the M62 MAM, there is a difference of 1.1 dB during the daytime and 1.2 dB during the night-time at TR2. The absolute noise level is also above the SOAEL during both daytime and night-time periods. Whilst the change is only fractionally greater than a change of 1.0dB, adhering to the LA111 guidance relating to local circumstances, this results in an effect which would be classified as being Significant. A further sensitivity test has been undertaken for properties along Heap Brow and Moss Hall Road which has established that the difference in noise level is less than 1.0dB at all other dwellings.

c) Potential Infrastructure Area BBB

- 9.215 At receptors located within closer proximity to Potential Infrastructure Area BBB, the magnitude of change ranges from negligible to small (adverse) in the short term. At all receptors the magnitude of change is negligible in the long term.

- 9.216 At receptors TR23, TR24 and TR28, following the introduction of the M62 MAM, the magnitude of change reduce from minor (adverse) to negligible and, therefore, effects considered to be negligible.
- 9.217 At receptors TR14, TR15, TR16, TR17b and TR31, the magnitude of change increases from negligible to minor adverse in the short term. Therefore, effects are considered to range between negligible to minor adverse. A difference of 1.0 dB or greater is also predicted at these receptors when comparing the 'with' and 'without' M62 MAM scenarios. Predicted absolute noise levels are below the SOAEL during the daytime and night-time at TR15, TR16 and TR17. Therefore, effects which are Significant are not predicted at these receptors. Predicted noise levels in 2032 DS scenario are above the SOAEL at TR14 during the night-time and, during both the daytime and night-time, TR17b. Therefore, effects which are Significant are predicted at these receptors.

Other noise sensitive receptors

- 9.218 The assessment of 'other noise sensitive receptors' as detailed in **Appendix 9.2** has identified that either there are a limited number of receptors within the spatial extent of the operational traffic noise study area. Within this area, three Grade II listed buildings have been identified, along with Heap Village Primary School along Heap Brow and, excluding those which are to be extinguished as part of the Project for Assessment, public rights of way (PRoW's). Based on the adopted methodology for operational road traffic noise, other noise sensitive receptors are of medium sensitivity.
- 9.219 At the identified receptors (Grade II listed buildings and Heap Village Primary School along Heap Brow), the magnitude of change ranges between negligible to small adverse in both the short term and long term.
- 9.220 There are also a number of Public Rights of Way (PRoW) located within the study area. All PRoW's across the Application Boundary will be extinguished and will be replaced by a network of replacement PROW's. For PROW's outside of the Assessment Boundary, within proximity to existing and potential new links in the area, the noise environment would be principally governed by existing road traffic noise. Given the linear nature of the PRoW's, the range of noise impacts along them and the transient usage of a PRoW, a material change in the experience of using the PRoW as a whole, which could affect people's health or quality of life, is not anticipated and no Significant adverse or beneficial effects on PRoW have been identified. As a proportionate assessment, using professional judgement, the magnitude of change with regard to transient users of PROW's is considered to range between negligible to small adverse in the short term and long term.
- 9.221 Therefore, there is likely to be a direct, permanent, adverse effect associated with 'other receptors' in both the short term and long term which is considered to range between negligible to minor (adverse) and effects are Not Significant.
- 9.222 As an overarching summary of the operational road traffic noise assessment is provided below:
- 9.223 The sensitivity of residential receptors (all receptors) is considered to be medium. The magnitude of change is considered to range between negligible and large. For receptors where the magnitude of change is predicted to be large, effects are considered to be moderate with the rationale presented in the assessment above. Therefore, there is likely to

be a direct, permanent, adverse effect in both the short and long term which is considered to range between negligible and moderate.

- 9.224 The sensitivity of 'other receptors' (Grade II listed buildings, Heap Village Primary School along Heap Brow and PROW's) are considered to be medium. The magnitude of change is considered to range between negligible and small. Therefore, there is likely to be a direct, permanent, adverse effect in both the short and long term which is considered to range between negligible and moderate.

Secondary Mitigation or Enhancement

- 9.225 With regard to the assessment undertaken above, as traffic data has been provided for the overall Project for Assessment, there is no differentiation between the assessment of the change in road traffic noise level associated with the Proposed Scheme and Project for Assessment. However, it is considered reasonable to consider Secondary mitigation as being relevant to the Proposed Scheme with regard to effects at receptors TR8 to TR10.

- 9.226 The consideration of Secondary Mitigation is as follows.

Proposed Scheme

a) Along Moss Hall Road within the Assessment Boundary (TR8 to TR10)

- 9.227 Moderate adverse effects have been identified at receptor locations TR8 to TR10, depending on the assessment scenario. Therefore, measures to reduce effects are considered necessary. Mitigation measures would be subject to detailed design which would be a matter to be considered during future planning applications.
- 9.228 It is considered that to be able to facilitate a reduction in noise at these receptors, the principal option will be to increase the separation distance of Moss Hall Road from the dwellings by the re-alignment of Moss Hall Road. Potential supplementary consideration could be given to acoustic grade barriers between the road and dwellings. Given the proximity of receptors to the road and the presence of an approximate 1.8m high wall already aligning the road, it is not considered that the provision of a barrier would be a realistic measure in isolation.
- 9.229 The aim will be to, if feasible, avoid effects which are significant adverse (in terms of planning policy) and mitigate adverse effects to correspond to, depending on context, the magnitude of change being minor (based on the criteria presented in **Table 9.11** and **Table 9.12**). In determining the extent of mitigation, this should be undertaken within the context of sustainable development as required by national planning policy which must aim to achieve a balance between economic, social and environmental objectives.
- 9.230 The requirement to consider measures to reduce operational road traffic noise at these receptors can be secured by way of a planning condition.

Project for Assessment

b) Along Moss Hall Road to the north of the Fowler Welch junction up to the A58 (TR1 to TR4)

- 9.231 The magnitude of change ranges between negligible to minor adverse depending on the assessment scenario along Moss Hall Road / Heap Brow. However, following the LA111 assessment methodology, following the opening of the M62 MAM as the change in noise

level is greater than 1.0dB, an effect which is Significant (in LA111 terms) is predicted in the short term.

- 9.232 The exceedance above the LA111 threshold determining whether the effect is Significant is very small and this is an existing road on the local road network outside of the Assessment Boundary. Dwellings are also outside of the spatial extent where eligibility under the Noise insulation Regulations would be applicable.
- 9.233 There are considered to be limited options to reduce the effect. However, it is proposed that a traffic management measure would be implemented as part of the travel plan to provide signage at the (existing) Fowler Welch junction to direct HGV's to turn left along Pilsworth Road towards M66 J3. Due to the presence of Heywood Distribution Park, it would not be feasible to provide a HGV restriction along this link, however, the aim would be to seek to minimise the number of HGV trips travelling north. With the introduction of this measure, particularly given the very slight exceedance of the short term threshold which has defined a significant effect in this circumstance, it is considered that the effects would reduce to negligible. However, as this would be a management measure and not enforceable, to present a worst case a reduction in the level of effect as detailed below has not been possible.

c) Potential Infrastructure Area BBB

- 9.234 Assessments of noise associated with works associated with the Potential Infrastructure Area BBB would be delivered by 3rd parties and subject to separate planning applications when more detailed design information would be available.
- 9.235 The assessments would include, if required, the incorporation of proportionate mitigation measures which could inter-relate. Examples of mitigation measures could include:
- The provision of noise barriers to reduce the level of operational road traffic noise attributable to the Proposed Scheme; and
 - Site layout and, for large scale works on the motorway network, road surfacing may also be a consideration.
- 9.236 However, various factors would be expected to be taken into account in the suitability of measures such as the number of receptors affected and the cost benefit of mitigation options within the context of the relevant policies of the Overseeing Organisations (e.g. National Highways).
- 9.237 With regard to the Noise insulation Regulations, Regulation 3 imposes a duty, and Regulation 4 a discretionary power, on the relevant Highway Authority to undertake or make a grant in respect of the cost of undertaking noise insulation work in eligible buildings affected by a new or altered highway. This is subject to meeting a range of criteria on road traffic noise levels as specified in the regulations. Agreement would be sought from the Overseeing Organisations regarding the requirement for an assessment in accordance with the Noise Insulation Regulations within the context of the relevant design proposals.

Table 9.26: Summary of Secondary Mitigation for Operational Stage

Mitigation	Person Responsible	Secured by	Relevant to	
			Project for Assessment	Proposed Scheme
Noise reduction from traffic noise along Moss Hall Road (adjacent to R8 to R10)	Applicant / future applications	Planning Condition	✓	✓
Noise control from new highway works within Potential Infrastructure Area BBB	Overseeing Organisation	Assessment embedded within future planning application / Planning Condition	✓	✗
Eligibility under the Noise Insulation Regulations	Overseeing Organisation	Assessment embedded within future planning application / Planning Condition	✓	✗
Traffic Management plan for re-routing of HGV's to M66 J3	Overseeing Organisation	Planning Condition	✓	✗

Residual Effect

Project for Assessment

9.238 In the absence of defined Secondary mitigation the residual effects for residential receptors (all receptors) is the same as that reported in the pre-mitigation scenario.

Proposed Scheme

9.239 In the absence of defined Secondary mitigation the residual effects for residential receptors (all receptors) is the same as that reported in the pre-mitigation scenario.

Significance

9.240 This effect is considered to be **Significant** for the Project for Assessment and the Proposed Scheme.

Noise from existing and reasonably foreseeable future noise sources on proposed residential receptors (Project for Assessment Only – Assessment Area FF)

9.241 Assessment Area FF is proposed for residential development of up to 200 homes. This Zone is partially bounded to the west by the M66 and existing school playing fields. Assessment Plots DD and EE with associated future employment uses proposed are located to the east and south respectively with the curtilage of a retained residential dwelling also aligning the eastern Assessment Plot Boundary. A cluster of existing residential premises which are to be retained are located in south eastern corner of this Zone (**Figure 4.3**).

- 9.242 In accordance with the assessment methodology, a high level qualitative assessment has been undertaken. The principal noise source that is expected that would require consideration is road traffic noise from the M66. There may be the potential to also consider noise from the existing / proposed Unsworth Academy sports pitches along with potential noise from plant in the northern corner of Plot FF where there is understood to be a gas governor compound. Whilst at the time of the site walkovers, no noise was audible from the compound, there may be occasions when the plant is operational and may require consideration.
- 9.243 As indicated previously, the assessment associated with effects on future residents is based on professional judgement. The sensitivity of future residents is considered to be medium. The magnitude of change is considered to be large. Therefore, there is likely to be a direct, permanent, long-term, term, adverse effect which is considered to be major.

Secondary Mitigation or Enhancement

- 9.244 With regard to the impact of noise from existing noise sources and proposed end uses on future receptors, assessments that would inform the design of the Plot for residential development would be undertaken as part of separate studies and will be a matter for when planning applications are made for those relevant areas.. Assessments would be undertaken by 3rd parties which would be expected to include a noise survey. There are various design measures that would inter-relate and the guidance provided within the ProPg provides a basis for such assessment including guidance with regard to a good acoustic design process.
- 9.245 The design of buildings and other features is a matter to be considered in detail at the Reserved Matters. In accordance with the ProPG Guidance, good acoustic design principles could include:
- Providing a greater stand-off from the M66 as far as practicable within the context of other design and masterplanning requirements as well as inter-relationship with other acoustic mitigation measures;
 - Provision of acoustic garden barriers between noise sources and receptors. This could include localised barriers around garden boundaries;
 - Using the layout of the scheme to reduce noise propagation across the Plot e.g. the 1st tier of buildings provide screening to dwellings / residents further into the Plot. In such cases, the provision of balconies should be considered including, if balconies are proposed is locations of higher noise levels, access to quieter amenity space;
 - Using the design of the dwellings to reduce impact on noise sensitive rooms, such as bedrooms. This may include having single aspect dwellings with bedrooms facing away from noise sources;
 - As is typical with such developments, a suitable scheme of sound insulation would be established during later design stages; and
 - With regard to the impact from future commercial or industrial uses at proposed residential premises, mitigation measures could be a combination of acoustic design at the dwellings and at the employment development.

- 9.246 With regard to a suitable scheme of sound insulation, the means to achieve this would be typically through a suitable scheme of sound insulation to the window unit, which typically includes the glazing, frame and ventilators. With the adoption of suitable mitigation which is typical for such developments, proposed dwellings could be designed to meet the relevant BS 8233 / WHO noise criteria of 35 dB $L_{Aeq,16hours}$ in living rooms and 30 dB $L_{Aeq,8hours}$ / 45 dB (for typical) L_{Amax} in bedrooms.
- 9.247 Ventilation provision would be designed in accordance with the relevant parts of Approved Document F of the Building Regulations. Ventilation provision can be achieved in several ways, including the use of acoustic trickle vents (which need to have an overall sound reduction equal to or greater than the glazing), other passive ventilation systems (e.g. through-wall ventilator) or a mechanical ventilation system. The acoustic requirements of Approved Document O of the Building Regulations may also need to be considered.
- 9.248 With regard to noise levels within gardens, there is no defined upper noise limit. However, where external noise levels in gardens or on balconies exceed 55 dB all reasonable steps should be taken to reduce noise levels. It is clear from the advice in BS 8233 and ProPG that external noise levels should not be reason to refuse planning permission, however there is no guidance on what would be considered a maximum permitted level above which noise may become unacceptable. Depending on context, a design criteria of 60 dB $L_{Aeq16hr}$ could be considered to be reasonable upper target level to inform the future design as long as it is demonstrated that a good acoustic design process has been followed including incorporating reasonable measures to achieve the lowest practicable levels in these external amenity spaces. However, this upper target level should not be considered a fixed limit or in isolation and any impacts may be off-set, for instance, if residents have access to a relatively quiet, protected, external publicly accessible amenity space.
- 9.249 With the incorporation of suitable design measures, it is considered that significant adverse noise effects (in planning policy terms) could be avoided. The reduction in effect level, is based on professional judgement rather than being qualified numerically which would not be feasible within the context of the outlined method.

Table 9.27: Summary of Secondary Mitigation for Operational Stage

Mitigation	Person Responsible	Secured by	Relevant to	
			Project for Assessment	Proposed Scheme
Good acoustic design measures and scheme of sound insulation to building envelope	Future applications	Planning Condition	✓	✗

Residual Effect

- 9.250 The sensitivity of future residents is considered to be medium. Using professional judgement, the magnitude of change is considered to be medium. Therefore, there is likely to be direct, temporary, long-term, adverse effect which is considered to be moderate.

Significance

9.251 This effect is considered to be **Not Significant** for the Project for Assessment.

Limitations and Assumptions

9.252 To ensure transparency within the EIA process, the following limitations and assumptions have been identified.

- As the Proposed Scheme is outline in nature, there are no fixed details of buildings or exact locations of noise generating sources. The design of buildings and other features is a matter to be considered in detail at the reserved matters stage for each Assessment Plot or Application Plot. Also the exact nature of the activities that would occur within the Application Boundary during the operational phase would not be known until the operators are confirmed. Therefore, the extent of the Application Plots in the Assessment and Parameter Plans has been used to determine the likely location of employment uses and identification of sensitive receptor locations;
- At this stage, outline noise criteria at identified receptor locations have been defined to form the basis of a framework to control noise associated with on-site activities including deliveries / servicing, noise breakout from buildings and fixed plant. Primary and Secondary mitigation measures, which are common to developments of this nature and which may be required to be incorporated within the design of the Proposed Scheme are presented in this Chapter and **Appendix 9.1**. These measures are also relevant to the Project for Assessment;
- Specific details regarding construction works are not currently available as the Contractor who would finalise the detailed design work has not yet been commissioned;
- Where such details are unknown, the assessment undertaken has been based on the previous experience or professional judgement of the assessor with regard to similar types of development;
- With regard to the assessment of road traffic noise the following assumptions and limitations have been identified. A further summary of assumptions and limitations associated with the calculation and noise modelling methodology is presented in Section 3 in **Appendix 9.2**;
- The assessment of traffic noise is based on information provided by Tetra Tech. This was based on traffic modelling undertaken by WSP and the methodology agreed with Transport for Greater Manchester. Reference should be made to **Transport Assessment** for further details of the traffic data. This ensured an accurate representation of vehicle flows in the local area:
- Traffic data associated with the Proposed Scheme in isolation has not been available at the time of writing. Therefore, the identified effects of the Proposed Scheme are generally reported as being the same as those for the Project for Assessment. As such the findings are likely to over-state likely affects associated with the Proposed Scheme, particularly during the long term. With regards to mitigation, recommendations

relating to the Proposed Scheme and the Project for Assessment are presented separately;

- For the night-time period, the changes in road traffic noise have been calculated on the same basis as the daytime calculations, but using the one hour calculation method instead of the 18 hour calculation method. The eight hour night-time traffic flows are assumed to be spread evenly across eight one hour periods, and the calculated one hour values are aggregated to determine the eight hour value;
- The assessment of works associated with Proposed Infrastructure Areas AAA – CCC, would be delivered by 3rd parties and subject to separate planning applications. Preliminary early stage design information have been provided for Potential Infrastructure Areas AAA and BBB which are indicative only and have been provided in confidence. Works in these areas could be different in scale and location to information which are currently available. However, in the absence of details associated with a more advanced assessment stage, the information provides the opportunity to present a ‘snapshot’ to enable reasonable assumptions to be made for a proportionate assessment to be undertaken at this stage. No design details are available for Area CCC. On this basis a proportionate assessment of potential effects associated with such works has been undertaken;
- A description of assumptions made for the purpose of this assessment within Potential Infrastructure Areas AAA and BBB are summarised as:
 - A new junction on the M62 between J19 and the Simister Island Interchange which includes a link to J19 which traverses along the southern side of the M62; and
 - Amended road alignments along the Moss Hall Road corridor from the Three arrows junction to the Fowler Welch junction and along Pilsworth Road towards M66 J3;
- No proposed ground data is available relating to potential works within Potential Infrastructure Areas AAA and BBB. Therefore, assigning new or realigned roads to existing ground levels where considered reasonable with assumptions made where there are greater variations in existing ground level to what could be reasonably considered (e.g. dips). In such situations, ground levels have been assigned to assumed road levels;
- For Potential Infrastructure Area CCC, no preliminary details are currently available. The Application is not reliant upon an access road in this area and although this access option is less likely, an assessment has been included for completeness in a proportionate manner;
- Following an initial screening exercise, the noise model focuses on areas and receptors further to the east and north of the Simister Island Interchange. Existing highway for this interchange alignments have been included in all noise models. The rationale is discussed within **Appendix 9.2**; and
- For the purpose of the road traffic noise assessment, the baseline noise levels used for the assessment of road traffic noise are those predicted by calculation and / or noise

modelling. Noise surveys have been undertaken which enable a description of the existing noise environment present within and around the Project for Assessment to be established.

Summary

- 9.253 **Table 9.28** provides a summary of the effects, receptors, residual effects and conclusions of significance considered within the Chapter, with reference to both the Project for Assessment and Proposed Scheme.
- 9.254 The table only provides a summary of the residual effects identified within the assessment. Details of all primary, secondary and tertiary mitigation that has been taken into account is summarised within **Volume 3: Environmental Management Plan**.

Table 9.28: Summary of Residual and Significant Effects for the Project for Assessment and Proposed Scheme

Effect	Receptor	Project for Assessment		Proposed Scheme	
		Residual Effect	Is the Effect Significant?	Residual Effect	Is the Effect Significant?
Construction Stage					
Noise from construction works	Residential (all receptors), hotel (Rc1), and educational (R19) receptors	Major adverse	YES	N/A	N/A
	Residential receptors (all receptors)	N/A	N/A	Moderate adverse	NO
	Recreational facilities (Pilsworth Fisheries) (R8)	N/A	N/A	Minor adverse	NO
Vibration from construction works	Residential receptors (all receptors)	Major adverse	YES	Moderate adverse	NO
Construction traffic noise on the road network	Residential receptors (all receptors)	Major adverse	YES	Minor adverse	NO
Operational Stage					
Noise from proposed commercial and industrial uses	Residential (R1 to R5 and R7, R9 to R17) and educational receptors (R19)	Minor adverse	NO	N/A	N/A
	Residential receptors (R1, R4 to R11 and R13)	N/A	N/A	Minor adverse	NO
	Recreational facilities (Pilsworth Fisheries) (R8)	N/A	N/A	Negligible	NO

Effect	Receptor	Project for Assessment		Proposed Scheme	
		Residual Effect	Is the Effect Significant?	Residual Effect	Is the Effect Significant?
Noise from proposed energy infrastructure (Providing power to the Project for Assessment)	Residential (R1 to R5 and R7, R9 to R17) and educational receptors (R19)	Minor adverse	NO	N/A	N/A
	Residential receptors (R1, R4 to R11 and R13)	N/A	N/A	Minor adverse	NO
	Recreational facilities (Pilsworth Fisheries) (R8)	N/A	N/A	Negligible	NO
Noise from General Activities (Vehicle movements on the internal access roads and car parking)	Residential (R1 to R5 and R7, R9 to R17) and educational receptors (R19)	Moderate adverse	NO	N/A	N/A
	Residential receptors (R1, R4 to R11 and R13)	N/A	N/A	Moderate adverse	NO
	Recreational facilities (Pilsworth Fisheries) (R8)	N/A	N/A	Minor adverse	NO
Noise from development generated road traffic and new highway infrastructure	Residential receptors (all receptors)*	Negligible to moderate adverse	YES	Negligible to moderate adverse	YES
	Residential receptors (TR8 to TR10)**	Moderate adverse (short term without M62 MAM)	YES	Moderate adverse (short term without M62 MAM)	YES
	Residential receptors (TR9b and 9d)**	Moderate adverse (long term 2024 sensitivity test)	YES	Moderate adverse (long term 2024 sensitivity test)	YES

Effect	Receptor	Project for Assessment		Proposed Scheme	
		Residual Effect	Is the Effect Significant?	Residual Effect	Is the Effect Significant?
	Residential receptors (TR1 to TR4 representative of receptors along Moss Hall Road / Heap Brow to the north of the Fowler Welch junction up to the A58)**	Negligible to minor adverse (short term with M62 MAM)	YES (At TR2 due to LA111 short term assessment for M62 MAM)	Negligible to minor adverse	NO
	Residential receptors (TR14 and TR17b)**	Negligible to minor adverse (short term with M62 MAM)	YES (Due to LA111 short term assessment for M62 MAM)	Negligible to minor adverse	NO
	Other receptors (Grade II listed buildings, Heap Village Primary School along Heap Brow and public rights of way)	Negligible to moderate adverse	NO	Negligible to moderate adverse	NO
Noise from existing and reasonably foreseeable future noise sources on proposed residential receptors	Proposed residential receptors	Moderate adverse	NO	N/A	N/A

*Over-arching summary presented;

** Presents a further summary where likely Significant effects are predicted

References

- ¹ Ministry of Housing, Communities and Local Government (December 2024), National Planning Policy Framework
- ² DEFRA (March 2010) Noise Policy Statement for England.
- ³ Ministry of Housing, Communities and Local Government (July 2019) Planning Practice Guidance.
- ⁴ GMCA, 2024. Places for Everyone Joint Development Plan Document for Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford and Wigan.
- ⁵ Rochdale Borough Unitary Development Plan 2001 – 2016.
- ⁶ Bury Unitary Development Plan (1997).
- ⁷ The Noise Insulation Regulations 1975, as amended 1988.
- ⁸ British Standards Institution [BS] 5228-1:2009+A1:2014 “Code of practice for noise and vibration control on construction and open sites – Part 1: Noise”.
- ⁹ British Standards Institution [BS] 5228-1:2009+A1:2014 “Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration
- ¹⁰ British Standards Institution [BS] 4142:2014+A1:2019, Methods for rating and assessing industrial and commercial sound
- ¹¹ The World Health Organisation: 1999: Guidelines for community noise
- ¹² BS 8233:2014 Guidance on sound insulation and noise reduction for buildings.
- ¹³ Highways Agency (2020) Design Manual for Roads and Bridges, Sustainability & Environment Appraisal, LA 111, Revision 2.
- ¹⁴ Department of Transport, Welsh Office (1988) Calculation of Road Traffic Noise.
- ¹⁵ Institute of Acoustics and Association of Noise Consultants (2015), Acoustics of Schools: a design guide.