# NOISE IMPACT ASSESSMENT

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|---|---|
| **Site:** | Parrs Wood, Didsbury |
| **References:** | 50-350-R2 |
| **Date:** | 02 March 2026 |
| **Client:** | Dandara Living Limited |



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# QUALITY ASSURANCE

| Report references | 50-350-R2 |
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# EXECUTIVE SUMMARY

| | |
|---|---|
| **Site Address** | Parrs Wood Lane, East Didsbury, Manchester M20 5NP |
| **Grid Reference** | E 385455 N 390485 |
| **Proposed Development** | Erection of a 6-storey residential building (Use Class C3) comprising 75 new homes together with ground floor flexible community space, car parking, cycle parking as well as landscaping, highways and other associated works |
| **Surveys Completed** | E3P has undertaken attended road traffic noise measurements during both daytime and night-time periods including both rush-hour periods for Parrs Wood Lane and Kingsway to quantify road traffic noise levels impacting the site. Attended rail noise and vibration measurements have been undertaken to quantify impact from the railway line and tramline that border the site.<br><br>Additionally, attended measurements have been conducted on the boundaries of the site to capture any commercial sound or music noise break-out associated with all nearby premises. |
| **Assessments Completed** | A 3D noise model has been constructed to assess road and rail traffic and commercial sound across the site and incident upon facades.<br><br>Road and rail traffic and car park noise is assessed in accordance with the criterion, for day and night, given in BS 8233:2014+A1:2019.<br><br>Rail vibration is assessed in accordance with BS 6472-2:2008.<br><br>Commercial noise associated with surrounding units is assessed in accordance with BS 4142:2014+A1:2019. |
| **Mitigation Recommended** | The assessment has found that higher specification glazing is required for certain facades to control road noise levels internally. The development require an overheating assessment that considers bedroom windows closed. E3P understand that this overheating assessment has been undertaken by Consolux M&E Consulting Ltd based on recommendations made within this report. |
| **Conclusions and Discussions** | With mitigation measures in place, this assessment has shown that no adverse impact is predicted day or night at the receptors due to commercial sound or road and rail traffic noise. |

# CONTENTS

1. INTRODUCTION ..... 5
1.1. Background ..... 5
1.2. Report Objectives ..... 5
1.3. Proposed Development ..... 5

2. ASSESSMENT METHODOLOGY ..... 7
2.1. National Planning Policy Framework (2024) ..... 7
2.2. National Planning Practice Guidance ..... 7
2.3. Building Regulation: Approved Document F – Volume 1: Dwellings (June 2022) ..... 9
2.4. Building Regulations: Approved Document O – Overheating (June 2022) ..... 10
2.5. Approved document o noise guide (2024) ..... 10
2.6. British Standard BS 4142:2014+A1: 2019 – Methods for rating and assessing industrial and commercial sound ..... 11
2.7. British Standard BS 8233:2014+A1:2019 – Guidance of sound insulation and noise reduction for buildings ..... 12
2.8. British Standard BS 6472-1: 2008: Guide to evaluation of Human Exposure to Vibration in Buildings ..... 13
2.9. Manchester City COuncil - Condition 11 ..... 13

3. SURVEY RESULTS ..... 14
3.1. Road Traffic – Parrs Wood Lane ..... 14
3.2. Road Traffic Noise Measurement - Kingsway ..... 15
3.3. Rail Traffic Sound Measurements ..... 16
3.4. Commercial Sound Measurements ..... 20
3.5. rail vibration measurement ..... 22

4. ROAD TRAFFIC NOISE IMPACT ASSESSMENT ..... 23
4.1. External Amenity Area Noise Level Assessment ..... 23
4.2. Internal Noise Level Assessment ..... 24
4.2.1. Ventilation Condition ..... 24
4.2.2. Overheating Condition ..... 24

5. MITIGATION ..... 26
5.1. façade Insulation and Ventilation ..... 26

6. CONCLUSIONS AND DISCUSSION ..... 28

APPENDIX I: LIMITATIONS ..... 0

APPENDIX II: GLOSSARY ..... 2

APPENDIX III: HOURLY MEASURED SOUND PRESSURE LEVELS ..... 5

APPENDIX IV: FIGURES ..... 6

# 1. INTRODUCTION

## 1.1. BACKGROUND

E3P were commissioned by Dandara Living to undertake a Noise Impact Assessment for a proposed residential development at Tesco Car Park, Parrs Wood Lane, East Didsbury, to be referred to hereafter as 'the Site'.

This assessment looks to determine the key noise sources in the immediate vicinity of the Site and to assess their impact, if any, upon proposed residential receptors and to specify mitigation measures, where required.

## 1.2. REPORT OBJECTIVES

The objectives of this report are as follows:

- Establish and measure the existing sound levels across the site, day and night.
- Consider the potential sources of sound impacting the site and to measure source sound levels of all applicable sources.
- Assess internal and external noise levels associated with road and rail traffic in accordance with criteria given in BS 8233.
- Assess the impact of rail vibration upon the proposed development in accordance with BS 6472-2:2008.
- Assess the impact of commercial sound upon the proposed development in accordance with BS 4142.
- Provide advice on mitigation measures, where required.

## 1.3. PROPOSED DEVELOPMENT

The client is proposing the erection of a 6-storey residential building (Use Class C3) comprising 75 new homes together with ground floor flexible community space, car parking, cycle parking as well as landscaping, highways and other associated works.

The key sources of sound impacting upon the Site is road traffic associated with Kingsway (A34) and Parrs Wood Lane (A5145), railway noise and car park usage associated with the retained Tesco Store car park. The site layout is indicated in Figure 1.

Figure 1 Snapshot of the Proposed Development



# 2. ASSESSMENT METHODOLOGY

## 2.1. NATIONAL PLANNING POLICY FRAMEWORK (2024)

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

- Mitigate and reduce to a minimum potential adverse impact resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life.
- identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.

## 2.2. NATIONAL PLANNING PRACTICE GUIDANCE

Noise needs to be considered when new developments may create additional noise and when new developments would be sensitive to the prevailing acoustic environment. When preparing local or neighbourhood plans, or taking decisions about new development, there may also be opportunities to consider improvements to the acoustic environment.

Local planning authorities' plan-making and decision-making should take account of the acoustic environment and in doing so consider:

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

In line with the explanatory note of the NPSE, this would include identifying whether the overall effect of the noise exposure (including the impact during the construction phase, where applicable) is, or would be, above or below the significant observed adverse effect level and the lowest observed adverse effect level for the given situation.

The "observed effect levels" are as follows:

- Significant observed adverse effect level: This is the level of noise exposure above which significant adverse effects on health and quality of life occur.
- Lowest observed adverse effect level: This is the level of noise exposure above which adverse effects on health and quality of life can be detected.
- No observed effect level: This is the level of noise exposure below which no effect at all on health or quality of life can be detected.

Table 2.1 summarises the noise exposure hierarchy, based on the likely average response.

Table 2.1 Noise Exposure Hierarchy

| PERCEPTION | EXAMPLES OF OUTCOMES | INCREASING EFFECT LEVEL | ACTION |
|---|---|---|---|
| Not Applicable | No effect | No observed effect | No specific measures required. |
| Noticeable and Not Intrusive | Noise can be heard but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life. | No observed adverse effect | No specific measures required |
| **Lowest Observed Adverse Effect** | | | |
| Noticeable and Intrusive | Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television, speaking more loudly, or having to close windows for some of the time because of the noise where there is no alternative ventilation. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life. | Observed adverse effect | Mitigate and reduce to a minimum |
| **Significant Observed Adverse Effect Level** | | | |
| Noticeable and Disruptive | The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion, having to keep windows closed most of the time because of the noise where there is no alternative ventilation. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area. | Significant observed effect | Avoid |
| Noticeable and Very Disruptive | Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening, loss of appetite, significant/medically definable harm (auditory and non-auditory). | Unacceptable adverse effect | Prevent |

The subjective nature of noise means that there is not a simple relationship between noise levels and the impact on those affected. This will depend on how various factors combine in any situation. These factors include the following:

- The source and absolute level of the noise together with the time of day it occurs. Some types and level of noise will cause a greater adverse effect at night than if they occurred during the day. The adverse effect can also be greater simply because there is less background noise at night.
- For non-continuous sources of noise, the number of noise events, and the frequency and pattern of occurrence of the noise can be important.
- The spectral content of the noise and the general character of the noise. The local topology and topography should also be considered along with the existing and, where appropriate, the planned character of the area.

More specific factors to consider when relevant:

- Where applicable, the cumulative impacts of more than one source should be considered along with the extent to which the source of noise is intermittent and of limited duration.
- Consideration should also be given to whether adverse internal effects can be completely removed by closing windows and, in the case of new residential development, if the proposed mitigation relies on windows being kept closed most of the time. In both cases, a suitable alternative means of ventilation is likely to be necessary.
- If external amenity spaces are an intrinsic part of the overall design, then the acoustic environment of those spaces should be considered so that they can be enjoyed as intended.

## 2.3. BUILDING REGULATION: APPROVED DOCUMENT F – VOLUME 1: DWELLINGS (JUNE 2022)

Approved document F Volume 1: Dwellings (ADF) provides guidance set by the Department for Levelling Up, Housing and Communities, that relates to means of ventilation within dwellings. The ventilation strategy specified within the ADF are as follows.

> *1.9 The ventilation strategy in this approved document relies on a combination of all of the following.*
>
> *a. Extract ventilation from rooms where water vapour or pollutants are likely to be released (e.g. bathrooms and kitchens), to minimise their spread to the rest of the building. Ventilation fans may be either intermittent operation or continuous operation.*
>
> *b. Whole dwelling ventilation to provide fresh air to the building and to dilute, disperse and remove water vapour and pollutants not removed by extract ventilation.*
>
> *c. Purge ventilation to remove high concentrations of pollutants and water vapour. Purge ventilation is used intermittently and required only for pollutants produced by occasional activities (e.g. fumes from painting).*
>
> *1.10 Ventilation may be delivered through natural ventilation, mechanical ventilation or a combination of both.*
>
> *1.11 The ventilation systems in this approved document are examples of systems that comply with Part F of the Building Regulations. Other ventilation systems may be acceptable if they can be shown to meet an equal level of performance.*

Within the ADF there are three system specific ventilation systems that can be utilised to provide sufficient ventilation. These methods are as follow.

*1.Natural ventilation with background ventilators and intermittent extract fans (guidance suitable only for less airtight dwellings) - Ventilation provided by thermal, wind or diffusion effects through doors, windows or other intentional openings without the use of mechanically driven equipment. For the purposes of this approved document, natural ventilation refers to a ventilation strategy using background ventilators and intermittent extract ventilation.*

*2.Continuous mechanical extract ventilation - Mechanically driven ventilation that continuously extracts indoor air and discharges it to the outside.*

*3. Mechanical ventilation with heat recovery - A mechanically driven ventilation system that both continuously supplies outdoor air to the inside of the dwelling and continuously extracts indoor air and discharges it to the outside. For the purposes of this approved document, the guidance for mechanical ventilation with heat recovery applies to centralised or decentralised supply and extract systems, with or without heat recovery.*

## 2.4. BUILDING REGULATIONS: APPROVED DOCUMENT O – OVERHEATING (JUNE 2022)

Approved document O - Overheating (ADO) provides guidance set by the Department for Levelling Up, Housing and Communities, that relates to the mitigation of overheating. In relation to noise the ADO provides the following guidance.

*3.2 In locations where external noise may be an issue (for example, where the local planning authority considered external noise to be an issue at the planning stage), the overheating mitigation strategy should take account of the likelihood that windows will be closed during sleeping hours (11pm to 7am).*

*3.3 Windows are likely to be closed during sleeping hours if noise within bedrooms exceeds the following limits.*

*a. 40dB $L_{Aeq,T,}$ averaged over 8 hours (between 11pm and 7am).*

*b. 55dB $L_{AFmax}$, more than 10 times a night (between 11pm and 7am).*

*3.4 Where in-situ noise measurements are used as evidence that these limits are not exceeded, measurements should be taken in accordance with the Association of Noise Consultants'*

*Measurement of Sound Levels in Buildings with the overheating mitigation strategy in use.*

*NOTE: Guidance on reducing the passage of external noise into buildings can be found in the National Model Design Code: Part 2 – Guidance Notes (MHCLG, 2021) and the Association of Noise Consultants' Acoustics, Ventilation and Overheating: Residential Design Guide (2020)*

## 2.5. APPROVED DOCUMENT O NOISE GUIDE (2024)

This guide sets out a method to demonstrate compliance to the Building Control Body of the noise constraints in AD-O. This guide aims to provide clarity for practitioners and regulators so that assessments can be carried out consistently, and the outcome is repeatable and reliable.

Any assessment of overheating, in relation to noise, follows this guidance. Importantly, the guide, based on research and typical assumptions, provides the resulting outside-to-inside level difference for window openings necessary to satisfy the simplified method of AD-O which are expected to be:

- 5 dB for 'high risk' locations; and
- 10 dB for 'medium risk' locations.

With reference to paragraph 3.3 of AD-O, this implies the following limiting external free-field levels above which external noise precludes the use of the simplified method, and dynamic thermal modelling should be used to demonstrate compliance.

The guide also recommends that $L_{Amax,fast}$ measurement and assessment should be based on a sampling period of 2 minutes.

## 2.6. BRITISH STANDARD BS 4142:2014+A1: 2019 – METHODS FOR RATING AND ASSESSING INDUSTRIAL AND COMMERCIAL SOUND

This standard describes methods for rating and assessing sound of an industrial or commercial nature which includes:

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

The procedure detailed in the standard compares the measured or predicted specific noise level from any of the above with the background sound level at a residential dwelling. The measured background sound level at a receptor should be reliable and should not necessarily ascertain a lowest measured background sound level, but rather to quantify what is typical.

The specific noise level also acknowledges the reference time intervals depending upon whether the noise source operates during daytime (1-hour) or night-time (15-minute) periods.

There are several 'penalties' which can be attributed to the specific sound level depending upon the 'acoustic features' of the sound level under investigation as follows:

### TONALITY

- +2 dB: where the tonality is just perceptible.
- +4 dB: where the tonality is clearly perceptible; and
- +6 dB: where the tonality is highly perceptible.

### IMPULSIVITY

- +3 dB: where the impulsivity is just perceptible.
- +6 dB: where the impulsivity is clearly perceptible; and
- +9 dB: where the impulsivity is highly perceptible.

### INTERMITTENCY

- +3dB: where the intermittency is readily distinctive against the acoustic environment.

In addition to the above, there is a penalty for 'other sound characteristics' of +3 dB where a sound exhibits characteristics that are neither tonal nor impulsive, though are readily distinctive against the acoustic environment. BS 4142 goes on to state that the rating level is equal to the specific sound level if there are no such features present or expected to be present.

Assessment of the rating level relative to the background sound level can yield the following commentary:

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

## 2.7. BRITISH STANDARD BS 8233:2014+A1:2019 – GUIDANCE OF SOUND INSULATION AND NOISE REDUCTION FOR BUILDINGS

The scope of this standard is the provision of recommendations for the control of noise in and around buildings including residential dwellings. It suggests appropriate criteria and limits for different situations, which are primarily intended to guide the design of new buildings or refurbished buildings undergoing a change of use, rather than to assess the effect of changes in the external noise climate.

The standard suggests suitable internal noise levels within different types of buildings, including residential dwellings, as shown in Table 2.2.

**Table 2.2 BS 8233:2014 Recommended Internal Noise Level**

| CRITERION | TYPICAL SITUATION | DESIGN CRITERION $L_{Aeq,T}$ (dB) |
|---|---|---|
| Suitable resting and sleeping conditions | Living Room | 35 |
| | Bedroom | 30 |

BS 8233 goes on to recommend noise levels for gardens:

> *It is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T,}$ with an upper guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments. However, it is also recognised that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors might be warranted.*

BS 8233 goes on to say:

> *In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces but should not be prohibited.*

## 2.8. BRITISH STANDARD BS 6472-1: 2008: GUIDE TO EVALUATION OF HUMAN EXPOSURE TO VIBRATION IN BUILDINGS

With respect to human exposure to building vibration, BS 6472 provides guideline values of the Vibration Dose Value (VDV) above which various degrees of adverse comment may be expected from the occupants of residential buildings. The VDV is defined mathematically as the fourth root of the time integral of the fourth power of the vibration acceleration, after it has been frequency weighted. The guideline values recommended by BS 6472 are shown in Table 4.

Table 2.3 BS 6472 Guideline Values

| Receptor | Low probability of adverse comment | Adverse comment possible | Adverse comment probable |
|---|---|---|---|
| | VDV (m/s) | | |
| Residential Building (16-hour day) | 0.2-0.4 | 0.4-0.8 | 0.8-1.6 |
| Residential Buildings (8-hour night) | 0.1-0.2 | 0.2-0.4 | 0.4-0.8 |

Where the vibration is intermittent rather than continuous in nature, BS 6472 defines procedures for calculating the estimated VDV, based on the number and duration of vibration events and the recorded value of the root mean square frequency weighted vibration acceleration. The frequency weighting considers the response of the human body to vibrations of different frequency and whether the person is lying down or standing. The VDV can then be taken as the VDV for use in the assessment of human exposure to vibration in buildings.

The above guidance relates to vibration measured at the point of entry into the human body, which is usually taken to mean the ground surface or at a point mid-span of an upper storey floor, rather than the point of entry into the building (a foundation element).

## 2.9. MANCHESTER CITY COUNCIL - CONDITION 11

Condition 11:

*Prior to the commencement of development on site, a scheme for acoustically insulating the proposed residential accommodation against noise from Kingsway and Parrs Wood Road, and the nearby train and tram line shall be submitted to and approved in writing by the City Council as local planning authority. There may be other actual or potential sources of noise which require consideration on or near the site, including local commercial premises and entertainment noise.*

*The potential for overheating shall also be assessed and the noise insulation scheme shall take this into account. The approved noise insulation and ventilation scheme shall be completed before any of the dwelling units are occupied.*

*Noise survey data shall include measurements taken during a rush-hour period and night time to determine the appropriate sound insulation measures necessary. It shall be necessary for vibration criteria within BS 6472: 2008 "Guide to evaluation of human exposure to vibration in buildings" to be included within the assessment and that groundborne noise/re-radiated noise also be factored into the assessment and design.*

*Additionally, where are entertainment noise is a factor in the noise climate the sound insulation scheme shall be designed to achieve internal noise levels in the 63Hz and 125Hz octave centre frequency bands so as not to exceed (in habitable rooms) 47dB and 41dB (Leq,5min), respectively.*

# 3. SURVEY RESULTS

E3P has undertaken two attended road noise measurements during both daytime and night-time (including for both rush hour periods) (Noise Measurement Position 1 and 2 (NMP1 and 2)) to assess noise along Parrs Wood Lane and Kingsway. Attended rail noise and vibration measurements were undertaken for the railway line and tramline that bound the site, at NMP3. The position for the rail measurements was chosen further away from the site to avoid influence from Parrs Wood Lane and car park movements. Attended commercial sound surveys (roaming and NMP4) were completed to capture noise associated with surrounding commercial premises.

The NMPs are shown in Figure 2:

**Figure 2 Noise and Vibration Measurement Positions**




## 3.1. ROAD TRAFFIC – PARRS WOOD LANE

E3P has conducted an attended Road Traffic Noise Survey to measure the level of noise along Parrs Wood Lane to the south of the site. The survey was carried out over the following time periods in accordance with shortened measurement procedure given in Calculation of Road Traffic Noise (CRTN) and condition 11 set out by Manchester City Council:

- 06:00-09:00 Friday 5th December 2025.
- 14:00-18:00 Monday 8th December 2025.

The following noise measurement position was chosen for the Road Traffic Noise Survey:

- Noise Measurement Position 1 (NMP 1): Located approximately 7 m from the nearside kerbstone of Parrs Wood Lane. The microphone was located at a height of 1.5 m above ground level and in free-field conditions. The sound climate was dominated by road traffic noise.

A summary of the measured sound pressure levels from the Road Traffic Noise Survey are presented in Table 3.1.

Table 3.1 Road Traffic Noise Measurement – Parrs Wood Lane

| MEASUREMENT START TIME | MEASURED SOUND PRESSURE LEVEL (dB) | | |
|---|---|---|---|
| | $L_{Aeq,T}$ | 10TH HIGHEST $L_{Amax, fast}$ | $L_{A10, T}$ |
| 05/12/2025 06:00 | 60.7 | 73.4 | 63.0 |
| 05/12/2025 07:00 | 63.0 | | 64.9 |
| 05/12/2025 08:00 | 64.2 | | 67.6 |
| 08/12/2025 14:00 | 63.6 | 77.0 | 66.0 |
| 08/12/2025 15:00 | 65.5 | | 68.0 |
| 08/12/2025 16:00 | 64.2 | | 66.5 |
| 08/12/2025 17:00 | 64.1 | 75.5 | 65.6 |
| Derived Daytime Noise Level in accordance with CRTN $L_{Aeq,16hr}$ | | | 63.8 |
| Derived Night-time Noise Level in accordance with CRTN $L_{Aeq,8hr}$ | | | 55.5 |

The calculated 16 hour daytime noise levels from between 14:00 and 17:00 is noted to be 63.8 dB, with the derived night-time noise level of 55.5 dB.

However, the 06:00 measurement, considered worst-case night-time, is 60.7 dB. As such, this will be used in the assessment. Furthermore, the 10th highest measured noise level between 14:00 and 17:00 will be used.

## 3.2. ROAD TRAFFIC NOISE MEASUREMENT - KINGSWAY

E3P has conducted an attended Road Traffic Noise Survey to measure the level of noise along Kingsway to the east of the site. The survey was carried out over the following time periods in accordance with shortened measurement procedure given in CRTN and condition 11 set out by Manchester City Council:

- 14:00-18:00 Monday 8th December 2025.
- 06:00-09:00 Thursday 11th December 2025.

The following noise measurement position was chosen for the Road Traffic Noise Survey:

- Noise Measurement Position 2 (NMP 2): Located approximately 10 m from the nearside kerbstone of Kingsway. The microphone was located at a height of 1.5 m above ground level and in free-field conditions. The sound climate was dominated by road traffic noise.

A summary of the measured sound pressure levels from the Road Traffic Noise Survey are presented in Table 3.2.

Table 3.2 Road Traffic Noise Measurement – Kingsway

| MEASUREMENT START TIME | MEASURED SOUND PRESSURE LEVEL (dB) | | |
|---|---|---|---|
| | $L_{Aeq,T}$ | 10TH HIGHEST $L_{Amax, fast}$ | $L_{A10, T}$ |
| 08/12/2025 14:00 | 63.7 | 79.1 | 66.2 |
| 08/12/2025 15:00 | 66.2 | | 68.4 |
| 08/12/2025 16:00 | 65.4 | | 67.5 |
| 08/12/2025 17:00 | 64.5 | 74.3 | 66.7 |
| 11/12/2025 06:00 | 60.5 | 75.0 | 63.8 |
| 11/12/2025 07:00 | 63.0 | | 64.7 |
| 11/12/2025 08:00 | 64.4 | | 66.5 |
| Derived Daytime Noise Level in accordance with CRTN $L_{Aeq,16hr}$ | | | 64.4 |
| Derived Night-time Noise Level in accordance with CRTN $L_{Aeq,8hr}$ | | | 56.0 |

The calculated 16 hour daytime noise levels from between 14:00 and 17:00 is noted to be 64.4 dB, with the derived night-time noise level of 56.0 dB.

However, the 06:00 measurement, considered worst-case night-time, is 60.5 dB. As such, this will be used in the assessment. Furthermore, the 10th highest measured noise level between 14:00 and 17:00 will be used.

## 3.3. RAIL TRAFFIC SOUND MEASUREMENTS

E3P has conducted a Rail Traffic Noise Survey to measure the level of noise generated by locomotives along the railway and tramline in the west and north respectively. Attended measurements ensured the trains and trams could be separated out from the data. The survey was carried out over the following time periods in accordance with Calculation of Rail Noise (CRN):

- 12:00 - 14:04 Wednesday 10th December 2025.

The following noise measurement position was chosen for the Rail Traffic Noise Survey:

- Noise Measurement Position 3 (NMP3): Located at the intersection of the rail and tramline approximately 12 m from the nearside rail of the tramway and 14m from the nearside rail of the railway line. The microphone was located at a height of 1.5 m above ground level and in free-field conditions. The sound climate was dominated by occasional rail and tram traffic, distant road traffic and birdsong.

A summary of the measured sound pressure levels from the Rail Traffic Noise Survey are presented in Table 3.3.

Table 3.3 Attended Rail Traffic Noise Levels

| MEASUREMENT START TIME | DESCRIPTION | TIME (seconds) | MEASURED SOUND PRESSURE LEVEL $L_{Aeq,T}$ (dB) | MEASURED $L_{AMAX, FAST}$ (dB) |
|---|---|---|---|---|
| 12:00 | Freight north | 20 | 65.4 | 81.4 |
| 12:04 | Transport for Wales south | 13 | 58.1 | 70.6 |
| 12:07 | Tram east | 20 | 56.2 | 67.1 |
| 12:08 | Northern Rail south | 20 | 51.2 | 63.9 |
| 12:10 | TransPennine express north | 20 | 55.9 | 65.9 |
| 12:13 | TransPennine express south | 20 | 58.8 | 72.3 |
| 12:15 | Tram east | 19 | 58.4 | 69.4 |
| 12:15 | Tram west | 20 | 59.8 | 69.5 |
| 12:19 | Northern Rail north | 20 | 56.4 | 68.0 |
| 12:19 | Northern Rail south | 20 | 59.5 | 69.4 |
| 12:21 | Tram west | 24 | 59.3 | 70.4 |
| 12:23 | Tram east | 19 | 63.3 | 74.7 |
| 12:25 | Northern Rail north | 19 | 52.6 | 57.6 |
| 12:26 | Northern Rail south | 20 | 53.5 | 63.6 |
| 12:29 | Tram east | 20 | 60.1 | 69.6 |
| 12:32 | Transport for Wales north | 28 | 55.6 | 66.8 |
| 12:33 | Tram west | 20 | 57.3 | 70.1 |
| 12:37 | Northern Rail north | 7 | 60.5 | 70.2 |
| 12:39 | Tram west | 20 | 58.4 | 75.4 |
| 12:40 | Tram west | 14 | 62.7 | 76.4 |
| 12:41 | Tram east | 22 | 63.5 | 78.1 |
| 12:42 | TransPennine express south | 20 | 59.1 | 70.4 |
| 12:45 | Tram west | 20 | 50.2 | 53.8 |
| 12:45 | Northern Rail north | 20 | 60.1 | 70.1 |

| MEASUREMENT START TIME | DESCRIPTION | TIME (seconds) | MEASURED SOUND PRESSURE LEVEL $L_{Aeq,T}$ (dB) | MEASURED $L_{AMAX, FAST}$ (dB) |
|---|---|---|---|---|
| 12:48 | Tram east | 20 | 50.5 | 55.1 |
| 12:48 | Northern Rail south | 20 | 62.3 | 74.6 |
| 12:50 | TransPennine express north | 19 | 50.0 | 57.4 |
| 12:51 | Tram west | 20 | 52.8 | 67.0 |
| 12:53 | Northern Rail north | 20 | 55.4 | 67.6 |
| 12:54 | Northern Rail south | 20 | 61.2 | 72.5 |
| 12:55 | Tram east | 24 | 59.5 | 71.2 |
| 12:57 | Tram west | 19 | 66.1 | 74.7 |
| 12:58 | Tram east | 19 | 53.0 | 60.0 |
| 13:00 | Transport for Wales south | 20 | 50.3 | 55.0 |
| 13:03 | Tram west | 20 | 62.2 | 71.7 |
| 13:04 | Freight north | 29 | 71.3 | 92.9 |
| 13:06 | Northern Rail south | 20 | 60.9 | 70.0 |
| 13:08 | Tram east | 20 | 53.0 | 60.7 |
| 13:10 | TransPennine express north | 19 | 59.7 | 68.1 |
| 13:10 | Tram west | 20 | 63.4 | 74.0 |
| 13:11 | TransPennine express south | 20 | 54.3 | 64.8 |
| 13:13 | Tram east | 20 | 63.7 | 77.8 |
| 13:14 | Tram west | 24 | 63.3 | 75.0 |
| 13:16 | Northern Rail south | 24 | 53.6 | 60.6 |
| 13:17 | Tram east | 19 | 61.1 | 71.9 |
| 13:19 | Northern Rail north | 19 | 63.3 | 72.7 |
| 13:21 | Tram west | 20 | 58.0 | 68.6 |
| 13:21 | Tram west | 20 | 50.9 | 56.6 |
| 13:24 | Northern Rail south | 29 | 65.4 | 78.2 |

| MEASUREMENT START TIME | DESCRIPTION | TIME (seconds) | MEASURED SOUND PRESSURE LEVEL $L_{Aeq,T}$ (dB) | MEASURED $L_{AMAX, FAST}$ (dB) |
|---|---|---|---|---|
| 13:25 | Northern Rail north | 18 | 62.0 | 70.6 |
| 13:27 | Tram west | 20 | 61.0 | 69.5 |
| 13:32 | Tram east | 19 | 67.0 | 76.3 |
| 13:33 | Transport for Wales north | 20 | 63.1 | 73.8 |
| 13:36 | Tram west | 24 | 72.2 | 85.9 |
| 13:37 | Northern Rail North | 19 | 51.9 | 56.9 |
| 13:39 | Tram east | 19 | 52.5 | 57.9 |
| 13:40 | Tram west | 20 | 62.6 | 71.6 |
| 13:41 | Tram east | 20 | 61.4 | 73.8 |
| 13:42 | Northern Rail north | 19 | 54.3 | 66.2 |
| 13:43 | Freight south | 28 | 63.0 | 72.2 |
| 13:45 | Tram west | 24 | 62.7 | 71.5 |
| 13:48 | Tram east | 19 | 61.2 | 71.2 |
| 13:49 | Northern Rail south | 19 | 50.7 | 56.8 |
| 13:50 | Northern Rail north | 20 | 69.7 | 84.6 |
| 13:51 | Tram west | 20 | 50.5 | 57.5 |
| 13:52 | Tram east | 21 | 61.3 | 66.2 |
| 13:53 | Northern Rail north | 20 | 65.4 | 71.5 |
| 13:54 | Northern Rail south | 24 | 61.2 | 71.2 |
| 13:57 | Tram west | 19 | 50.7 | 56.8 |
| 13:58 | TransPennine Express south | 19 | 69.7 | 84.6 |
| 14:01 | Transport for Wales south | 20 | 55.9 | 57.5 |
| 14:03 | Tram west | 20 | 61.2 | 70.0 |

Due to the busy nature of the railway line, the worst case measured hour of 63.4 dB $L_{Aeq}$ has been used to inform worst case daytime and night-time noise levels for the railway line and tramline. Maximum rail noise levels are taken as the 10$^{th}$ highest $L_{Amax,fast\ 2min}$ which is 76.2 dB.

## 3.4. ENTERTAINMENT/MUSIC NOISE BREAK-OUT MEASUREMENTS

E3P has conducted observations along the perimeters of the site to ascertain whether commercial sound is audible on site and to quantify the levels of noise, if any.

Observations of all areas surrounding site including to the north of the development at the Tesco service yard, and to the south east across Kingsway were undertaken at the following times:

- 06:00-09:00 Friday 5th December 2025.
- 14:00-18:00 Monday 8th December 2025.
- 12:00-14:00 Wednesday 10th December 2025.
- 06:00-09:00 Thursday 11th December 2025.

During the above observation times, roaming observation points along Kingsway, Parrs Wood Lan, within the Tesco service yard and across Kingsway at the entertainment centre were chosen to ascertain any activity related to neighbouring commercial premises, including any possibility for music/entertainment noise break-out.

During this time, no commercial activities were noted to be operational or audible. One HGV movement was noted at the Tesco service yard at 13:40 on Wednesday 10th December, however the development site was completely shielded from this activity and as such the activity is inaudible and not assessed.

The following noise measurement position was chosen to capture any entertainment/music breakout audible at the development site:

- Noise Measurement Position 4 (NMP4): Located in the south eastern corner of site closest to the Parrs Wood Entertainment centre. The microphone was located at a height of 1.5 m above ground level and in free-field conditions. The sound climate was dominated by road noise from Kingsway and Parrs Wood Lane.

The survey was conducted during the following period:

- 21:00-22:00 Tuesday 9th December 2025.

Table 3.4 details the results of the attended measurements focussing on surrounding commercial and any music noise break-out..

**Table 3.4 Measured Sound Levels at NMP4**

| PERIOD | NMP | MEASURED SOUND LEVEL, $L_{Aeq,T}$ (dB) | NOTES |
|---|---|---|---|
| 09/12/2025 21:00-21:15 | NMP4 | 60.3 | No audible commercial noise, music or entertainment noise. Sound climate dominated by road traffic noise from Kingsway and Parrs Wood Lane. |
| 09/12/2025 21:15-21:30 | | 59.7 | |
| 09/12/2025 21:30-21:45 | | 59.3 | |

| | | | |
|---|---|---|---|
| 09/12/2025 21:45-22:00 | | 59.1 | |

The measurements above are lower than measured road traffic levels, due to the dominance of Kingsway and Parrs Wood Lane across the site. No music noise is present on site.

Weather conditions were conducive to the measurement of environmental noise throughout.

The equipment outlined in Table 3.5 was used for the noise survey.

Table 3.5 Noise Measurement Equipment and Calibration Dates

| MEASUREMENT POSITION | EQUIPMENT DESCRIPTION | MANUFACTURER AND TYPE NUMBER | SERIAL NUMBER | CALIBRATION DUE DATE |
|---|---|---|---|---|
| NMP1-4 | Sound Level Meter | Svantek SV958A | 97701 | 02/08/2026 |
| | Calibrator | Cirrus CR:515 | 109322 | 16/06/2026 |

## 3.5. RAIL VIBRATION MEASUREMENT

E3P has conducted attended vibration measurements of passing trains during a typical weekday period. The survey was carried out over the following period:

- 12:00 - 14:04 Wednesday 10th December 2025.

The following vibration measurement position was chosen for the Rail Pass-by Survey:

- Vibration Measurement Position 1 (VMP1): Located at NMP3. The geophone of the meter was located on level ground, coupled and levelled to the ground.

A summary of the measured vibration levels is presented in Table 3.6.

Table 3.6 Summary of Measured Rail Vibration Levels

| MEASUREMENT PERIOD | VDV (VIBRATION DOSE VALUE) (m/s) | | |
|---|---|---|---|
| | X Axis | Y Axis | Z Axis |
| 12:00-14:04 | 0.014 | 0.018 | 0.077 |

As can be seen, the highest measured VDV value is 0.077. This falls below the low probability of adverse comment stipulated in BS 6472-1:2008 'Guide to evaluation of human exposure to vibration in buildings. Part 1: Vibration sources other than blasting'. As such, no adverse impact is predicted due to rail vibration.

As such, rail vibration is considered acceptable.

The equipment outlined in Table 3.7 was used for the noise survey.

Table 3.7 Vibration Measurement Equipment and Calibration Dates

| MEASUREMENT POSITION | EQUIPMENT DESCRIPTION | MANUFACTURER AND TYPE NUMBER | SERIAL NUMBER | CALIBRATION DUE DATE |
|---|---|---|---|---|
| VMP1 | Vibration Meter | Svantek SV958A | 97701 | 02/08/2026 |

# 4. ROAD AND RAIL TRAFFIC NOISE IMPACT ASSESSMENT

For the purposes of this assessment, E3P has used noise modelling software, CadnaA 2025 MR1, to determine the impact of noise from road and rail traffic sound.

The following inputs have been included in the model:

- Parrs Wood Lane is calibrated to NMP1.
- Kingsway is calibrated to NMP2.
- The railway and tramline are calibrated to worst case levels from NMP3.
- Site elevations have been taken as existing by way of a 2 m grid Digital Terrain Model (DTM) which contains public sector information licensed under the Open Government License v3.0.
- Existing buildings are included.
- A reflection order of 2 has been used in all calculations.
- Noise levels generated using ISO 9613-2:2024 "Acoustics – Attenuation of sound during propagation outdoors" and CRTN as incorporated into CadnaA software.

Figures 3 and 4 determine the noise levels across the Site during the daytime and night-time periods, respectively, due to road and rail traffic sound and car park noise.

## 4.1. EXTERNAL AMENITY AREA NOISE LEVEL ASSESSMENT

The noise model has been used to predict noise levels in external amenity areas. E3P note that balconies are proposed on all floors facing out of the development on northeast, south east and south west facades. The predicted levels range from 62 dB to 69 dB in these balconies. Balconies facing into the Tesco Car Park will experience noise levels of below 60 dB.

BS 8233 provides the following commentary on balconies:

*Other locations, such as balconies, roof gardens and terraces, are also important in residential buildings where normal external amenity space might be limited or not available, i.e. in flats, apartment blocks, etc. In these locations, specification of noise limits is not necessarily appropriate. Small balconies may be included for uses such as drying washing or growing pot plants, and noise limits should not be necessary for these uses. However, the general guidance on noise in amenity space is still appropriate for larger balconies, roof gardens and terraces, which might be intended to be used for relaxation. In high-noise areas, consideration should be given to protecting these areas by screening or building design to achieve the lowest practicable levels. Achieving levels of 55 dB $L_{Aeq,T}$ or less might not be possible at the outer edge of these areas, but should be achievable in some areas of the space.*

As such, it is not considered prudent to assess these areas, especially given that nearby green areas are within walking distance of the development site. The balconies are recessed and so have solid full height sides as well as a solid base and top which affords them some protection. Given that they are recessed, if the front balustrade was solid too it would dramatically reduce the daylight to the living rooms behind and also impact on the overall solidity of the architecture. As such, no further consideration to mitigation for the balconies is warranted.

## 4.2. INTERNAL NOISE LEVEL ASSESSMENT

With regards internal noise levels, E3P has assumed a standard glazing specification of 4 mm glass/20 mm air space/4 mm glass affords sound insulation performance in the order of 29 dB however this is for a pink noise spectrum. The same unit, weighted for road traffic and rail noise, have sound insulation performance values of approximately 25 dB and 28 dB respectively, and so these values has been used to calculate internal noise levels for noise break in dependant on the dominant source at the façade.

The model has been used to predict façade noise levels at all floors. In order to determine any requirements for mitigation, E3P has added the reduction provided by the glazing (25 dB for road, 28 dB for rail) to the relevant criterion for day (35 dB) and for night (30 dB). As such, any facades subject to noise levels higher than 60 dB during the day and/or 55 dB during the night will require higher specification glazing.

As can be seen from the figures, facades exposed to the roads and railway line have levels that exceed this criterion and therefore higher specification glazing is required to mitigate road noise internally.

Consideration must also be given to maximum noise levels generated by road traffic. The 10th highest maximum noise level has been used and distance corrected to the closest plot. Internal maximum noise levels of 45 dB $L_{Amax}$ should also not be exceeded. The sound insulation performance achieved by standard glazing (29 dB) has been added to the 45 dB maximum internal noise level limit. As, such facades subject to maximum noise levels above 74 dB will require higher specification glazing.

The maximum noise level at the worst affected facades is calculated to be 85 dB from Parrs Wood Lane. Therefore, higher specification glazing is required to mitigate against maximum noise levels generated by road traffic and rail. Section 6 details the exact specifications.

### 4.2.1. VENTILATION CONDITION

When considering a partially open window for ventilation purposes, E3P has assumed that a Building Regulations ADF compliant system would be installed as part of the development, in all plots, as it is unlikely the plots are suitable for natural ventilation.

Therefore, the only consideration in relation to noise will be the performance of any window mounted or through walls vents in relation to the passage of external to internal noise.

This is discussed in the mitigation section.

### 4.2.2. OVERHEATING CONDITION

E3P has considered the requirements of ADO in relation to opening windows at night to mitigate the potential for overheating, which at this stage is assumed to be required. Therefore, external noise levels at affected facades apply. Any plots that experience noise levels below these limits will be able to have openable windows to mitigate any overheating. Those that exceed these limits will be subject to an Overheating Assessment by a suitably qualified professional.

It is noted that the site is within a medium risk area and, as such, an outside-to-inside level difference for window openings for the simplified method is noted to be 10 dB.

As such, the allowable façade noise levels are 50 dB averaged over the 8 hour night time period and 65 dB $L_{Amax,fast,2min}$ during the night.

As can be seen from Figures 5 and 6, all facades exceed the average noise level assessment and the maximum noise level assessment. As such, the development must be modelled with windows closed at night.

E3P understand that the overheating assessment recommended above has been undertaken by Consolux M&E Consulting Ltd. Findings are discussed in section 5.

# 5. MITIGATION

## 5.1. FAÇADE INSULATION AND VENTILATION

The previous section assumed that a ventilation system in accordance with Part F would be installed across the site as it is assumed natural ventilation is not appropriate for these dwellings.

Figure 7 and Table 6.1 show the required glazing per façade. The worst-case required glazing is chosen per facade. For example, where a glazing needed due to night-time noise is higher than for daytime periods, the night-time requirements are recommended. Where maximum noise levels need mitigation the $R_w$ value is provided. Each façade is allocated a colour on figure 7 for ease of reference.

Table 6.1 Glazing requirements

| FACADE | GLAZING REQUIRED | EXAMPLE GLAZING (GLASS/AIR/GLASS) (mm) |
|---|---|---|
| South facing facade, overlooking Parrs Wood Lane (pink) | 36 $R_w$ + $C_{tr}$ (40 $R_w$) | 8 / 12 / 8.4* |
| South western corner (yellow) | 32 $R_w$ + $C_{tr}$ (37 $R_w$) | 8 / 6 / 8.8* |
| Western facing façade (blue) | 30 $R_w$ + $C_{tr}$ (33 $R_w$) | 6 / 10 / 4 |
| South eastern corner (green) | 34 $R_w$ + (37 $R_w$) | 8 / 6 / 8.8* |
| Eastern facing façade (red) | 30 $R_w$ + $C_{tr}$ (31 $R_w$) | 8 / 10 / 4 |

*denotes acoustic glazing

With regards to overheating, plots highlighted with a red façade on Figures 5 and 6 should be modelled with bedroom windows closed.

It is recommended that a glazier is consulted to ensure any system installed achieves the above reduction as a minimum. These specifications should be reviewed by an acoustician.

Where window mounted trickle vents or through wall vents are proposed, the sound reduction in the open position should be at least that achieved by the glazing + 3 dB.

## 5.2. OVERHEATING

E3P understands that the recommended overheating assessment has been undertaken by Consolux M&E Consulting Ltd, who state:

*The mechanical ventilation with heat recovery (MVHR) system has been assessed for part o compliance, providing controlled ventilation and additional filtration of external air to support the overheating assessment. Table below presents the details of the ventilation flow rates.*

| Units | Room | MVHR Mode | Ventilation rate |
|---|---|---|---|
| All the rest apartments | Bedroom & LKD | Background | 0.3l/s/m$^2$ |
| | | Purge | 2ACH |
| Apt. 05, 07, 08, 09 on 2nd- 3rd floors and Apt. 07, 08, 09 on 4th- 5th floors | Bedroom & LKD | Background | 0.3l/s/m$^2$ |
| | | Purge | 2.5ACH |

Table 5 | Mechanical Ventilation details

E3P trust that the findings of this report are reliable and satisfy requirements.

# 6. CONCLUSIONS AND DISCUSSION

E3P was commissioned to undertake a Noise Impact Assessment for the proposed residential development at Parrs Wood, Didsbury.

E3P have undertaken road and rail traffic sound measurements for the surrounding transport network to quantify road and rail traffic noise levels impacting the site.

Additionally, observations and attended measurements have been conducted on the boundaries of the site to capture commercial sound associated with all nearby premises.

A 3D noise model has been constructed to assess road and rail traffic sound across the site and incident upon facades.

Road and rail traffic is assessed in accordance with the criterion, for day and night, given in BS 8233:2014+A1:2019.

The assessment has found that higher specification glazing is required at certain facades and that certain plots would require an overheating assessment with bedroom windows closed.

With mitigation measures in place, this assessment has shown that no adverse impact is predicted day or night at the receptors due to commercial sound or road and rail traffic sound.

**END OF REPORT**

# Appendix I: Limitations



## GENERAL

1. This report and any associated works (together comprising the "Services") were compiled and carried out by E3P for the client (as present in Section 1) under the E3P “Terms of Business” or with those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed and outlined in the body of the report.

2. Unless explicitly agreed otherwise, in writing, this report has been prepared under E3P Standard Terms and Business as included within our proposal to the Client.

3. Project-specific appointment documents may be agreed upon at our discretion and a charge may be levied for both the time to review and finalise appointment documents and also for associated changes to the appointment terms. E3P reserves the right to amend the fee should any changes to the appointment terms create an increased risk to E3P.

4. The report needs to be considered in light of the proposal and associated limitations of scope. The report needs to be read in full and isolated sections cannot be used without full reference to other elements of the report and any previous works referenced within the report.

## NOISE AND VIBRATION IMPACT ASSESSMENTS

5. Where a noise or vibration survey is required to inform an assessment, E3P will endeavour to ensure that all noise and vibration measurements taken are robust, representative and reliable in order to inform an accurate assessment.

6. Where mitigation measures are specified in this report, it should be noted that these measures are relative to a specific sound or vibration source, both in terms of the measured sound pressure and vibration level and the character of the sound source. Where either the sound pressure level or the character of the sound varies following completion of the sound survey, E3P cannot be held responsible for any subsequent variations in the proposed mitigation performance.

7. The works undertaken to prepare this report comprised a study of available and easily documented information from a variety of sources (including the Client), together with (where appropriate) a brief walkover inspection of the Site and correspondence with relevant authorities and other interested parties. Due to the short timescales associated with these projects responses may not have been received from all parties. E3P cannot be held responsible for any disclosures that are provided post-production of our report and will not automatically update our report.

8. The opinions given in this report have been dictated by the finite data on which they are based and are relevant only for the purpose for which the report was commissioned. The information reviewed should not be considered exhaustive and has been accepted in good faith as providing true and representative data pertaining to site conditions. Should additional information become available which may affect the opinions expressed in this report, E3P reserves the right to review such information and, if warranted, to modify the opinions accordingly.

9. E3P does not warrant work/data undertaken/provided by others.

# Appendix II: Glossary



## NOISE

Noise is defined as unwanted sound. Human ears are able to respond to sound in the frequency range 20 Hz (deep bass) to 20,000 Hz (high treble) and over the audible range of 0 dB (the threshold of perception) to 140 dB (the threshold of pain). The ear does not respond equally to different frequencies of the same magnitude but is more responsive to mid-frequencies than to lower or higher frequencies. To quantify noise in a manner that approximates the response of the human ear, a weighting mechanism is used. This reduces the importance of lower and higher frequencies, in a similar manner to the human ear.

Furthermore, the perception of noise may be determined by a number of other factors, which may not necessarily be acoustic. In general, the impact of noise depends upon its level, the margin by which it exceeds the background level, its character and its variation over a given period of time. In some cases, the time of day and other acoustic features such as tonality or impulsiveness may be important, as may the disposition of the affected individual. Any assessment of noise should give due consideration to all of these factors when assessing the significance of a noise source. The most widely used weighting mechanism that best corresponds to the response of the human ear is the “A”-weighting scale. This is widely used for environmental noise measurement, and the levels are denoted as dB(A) or LAeq, LA90 etc., according to the parameter being measured.

The decibel scale is logarithmic rather than linear, and hence a 3 dB increase in sound level represents a doubling of the sound energy present. Judgement of sound is subjective but, as a general guide, a 10 dB(A) increase can be taken to represent a doubling of loudness, whilst an increase in the order of 3 dB(A) is generally regarded as the minimum difference needed to perceive a change under normal listening conditions. An indication of the range of sound levels commonly found in the environment is given in the following table.

**Table A Typical Sound Pressure Levels**

| SOUND PRESSURE LEVEL | LOCATIONS/EXAMPLE |
|---|---|
| 0 | Threshold of hearing |
| 20-30 | Quiet bedroom at night |
| 30-40 | Living room during the day |
| 40-50 | Typical office |
| 50-60 | Inside a car |
| 60-70 | Typical high street |
| 70-90 | Inside a factory |
| 100-110 | Burglar alarm at 1 m away |
| 110-130 | Jet aircraft on take off |
| 140 | Threshold of pain |

## ACOUSTIC TERMINOLOGY

Table B Terminology

| DESCRIPTOR | EXPLANATION |
|---|---|
| dB (decibel) | The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure (2E-05 Pa). |
| dB(A) | A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. “A” weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies. |
| LAeq, T | LAeq is defined as the notional steady sound level which, over a stated period of time (T), would contain the same amount of acoustical energy as the A-weighted fluctuating sound measured over that period. |
| LAmax | LAmax is the maximum A-weighted sound pressure level recorded over the period stated. LAmax is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the overall Leq noise level but will still affect the noise environment. Unless described otherwise, it is measured using the “fast” sound level meter response. |
| L10 and L90 | If a non-steady noise is to be described, it is necessary to know both its level and the degree of fluctuation. The Ln indices are used for this purpose, and the term refers to the level exceeded for n% of the time. Hence L10 is the level exceeded for 10% of the time and as such can be regarded as the “average maximum level”. Similarly, L90 is the “average minimum level” and is often used to describe the background noise. It is common practice to use the L10 index to describe traffic noise. |
| Free-field Level | A sound field determined at a point away from reflective surfaces other than the ground with no significant contributions due to sound from other reflective surfaces. Generally, as measured outside and away from buildings. |
| Fast | A time weighting used in the root-mean-square section of a sound level meter with a 125-millisecond time constant. |
| Slow | A time weighting used in the root-mean-square section of a sound level meter with a 1000-millisecond time constant. |
| dB (decibel) | The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure (2E-05 Pa). |
| dB(A) | A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. “A” weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies. |

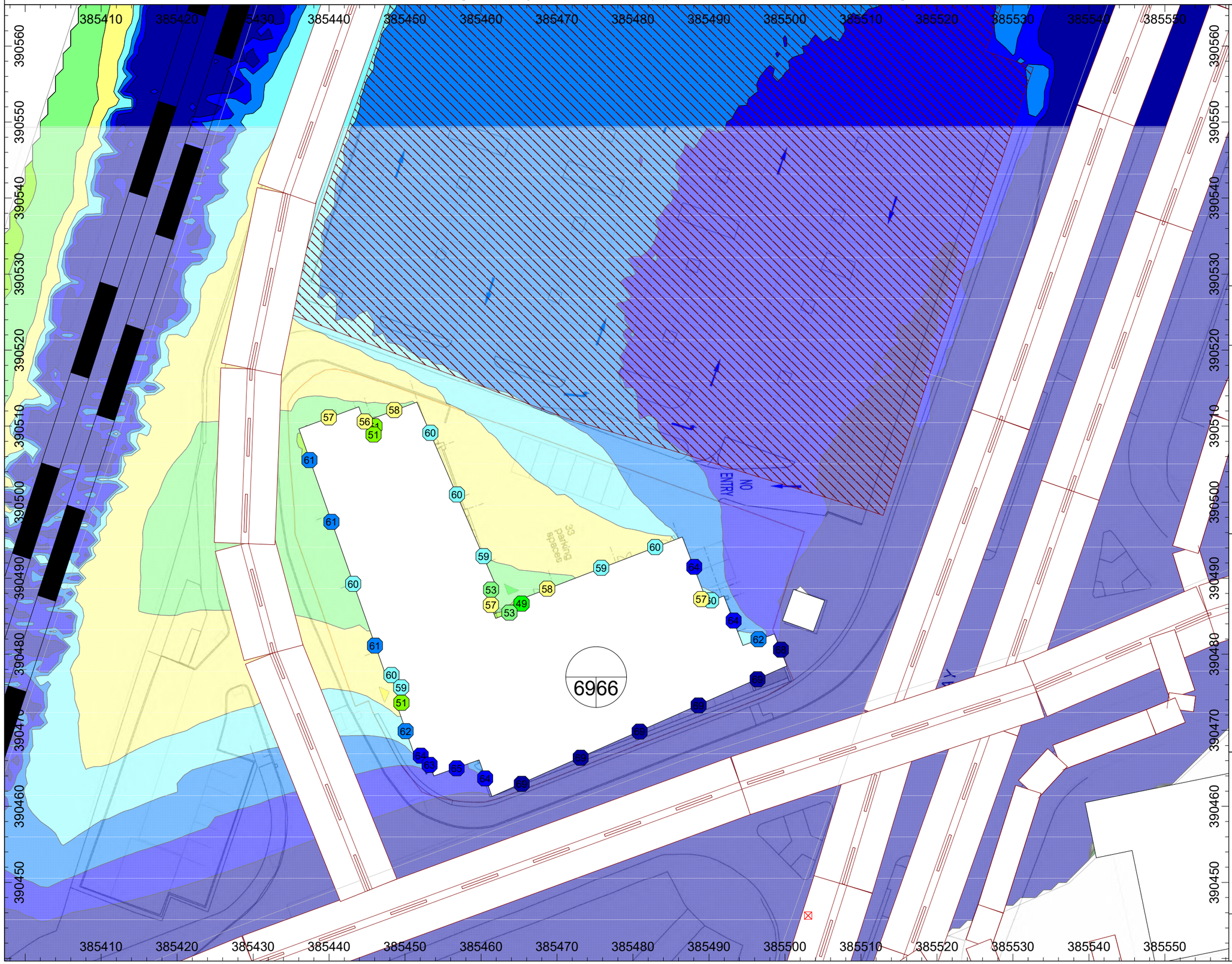
# Appendix III: Hourly Measured Sound Pressure Levels



# Appendix IV: Figures



**Figure 3 - Daytime Grid Noise Map (BS 8233) - Calculation at 1.5 m above ground level**




**Project:**
**Parrs Wood, Didsbury**

**Project-No:**
**50-350**

**Client:**
**Dandara Living Ltd**

**Daytime Noise Level, LAeq, 16hr (dB)**

- ... <= 48
- 48 < ... <= 50
- 50 < ... <= 52
- 52 < ... <= 56
- 56 < ... <= 58
- 58 < ... <= 60
- 60 < ... <= 62
- 62 < ... <= 65
- 65 < ...

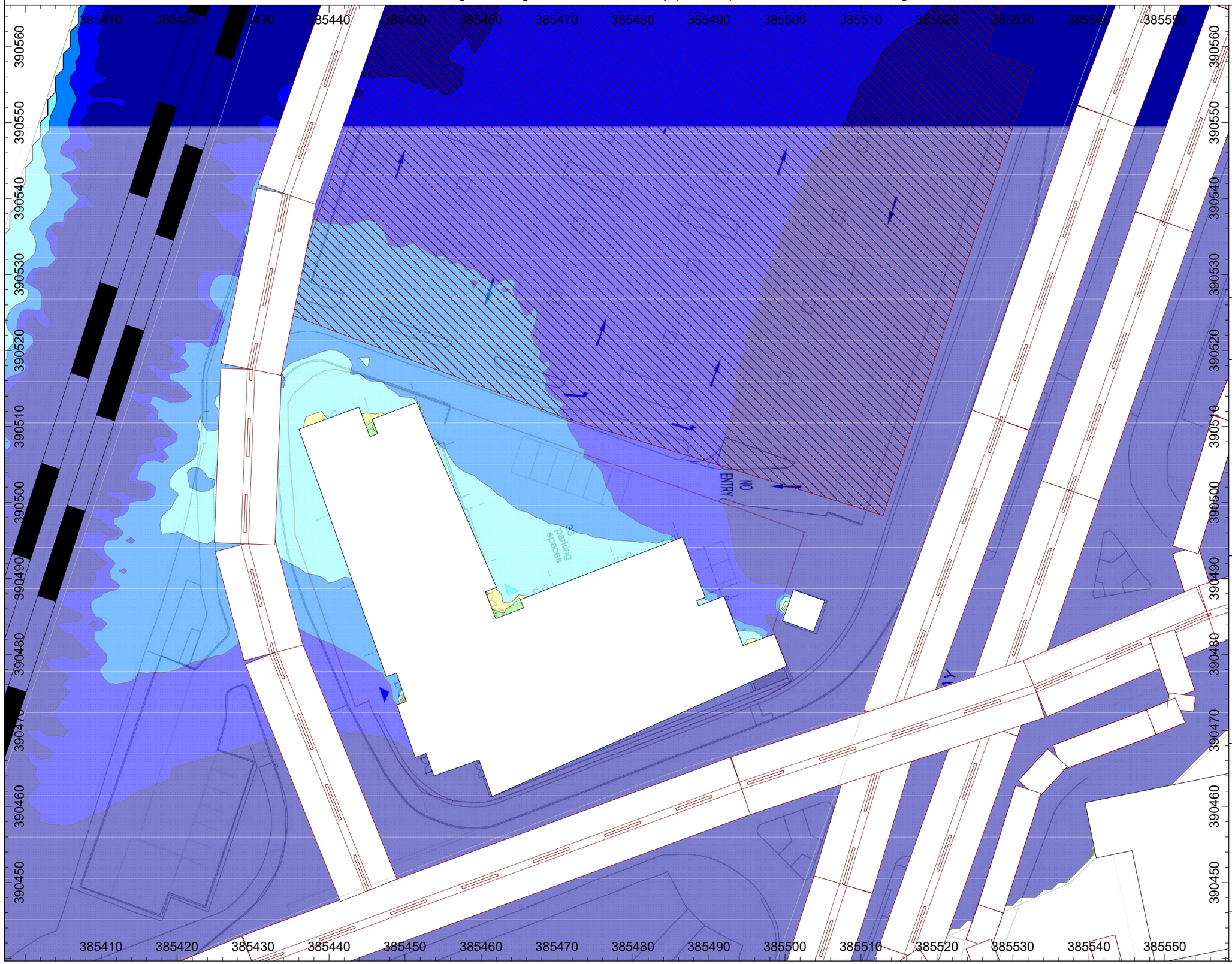
**Noise Map Objects**

- Line Source
- Road
- Crossing
- Parking Lot
- Railway
- Building
- Bridge
- Building Evaluation
- Calculation Area

e3p

Project Engineer: Melissa Bailey
Date: 15/12/2025

**Figure 4 - Night-time Grid Noise Map (BS 8233) - Calculation at 4 m above ground level**




**Project:**
**Parrs Wood, Didsbury**

**Project-No:**
**50-350**

**Client:**
**Dandara Living Ltd**

**Night-time Noise Level, LAeq, 8hr (dB)**

- ... <= 42
- 42 < ... <= 45
- 45 < ... <= 47
- 47 < ... <= 50
- 50 < ... <= 52
- 52 < ... <= 55
- 55 < ... <= 57
- 57 < ... <= 60
- 60 < ...

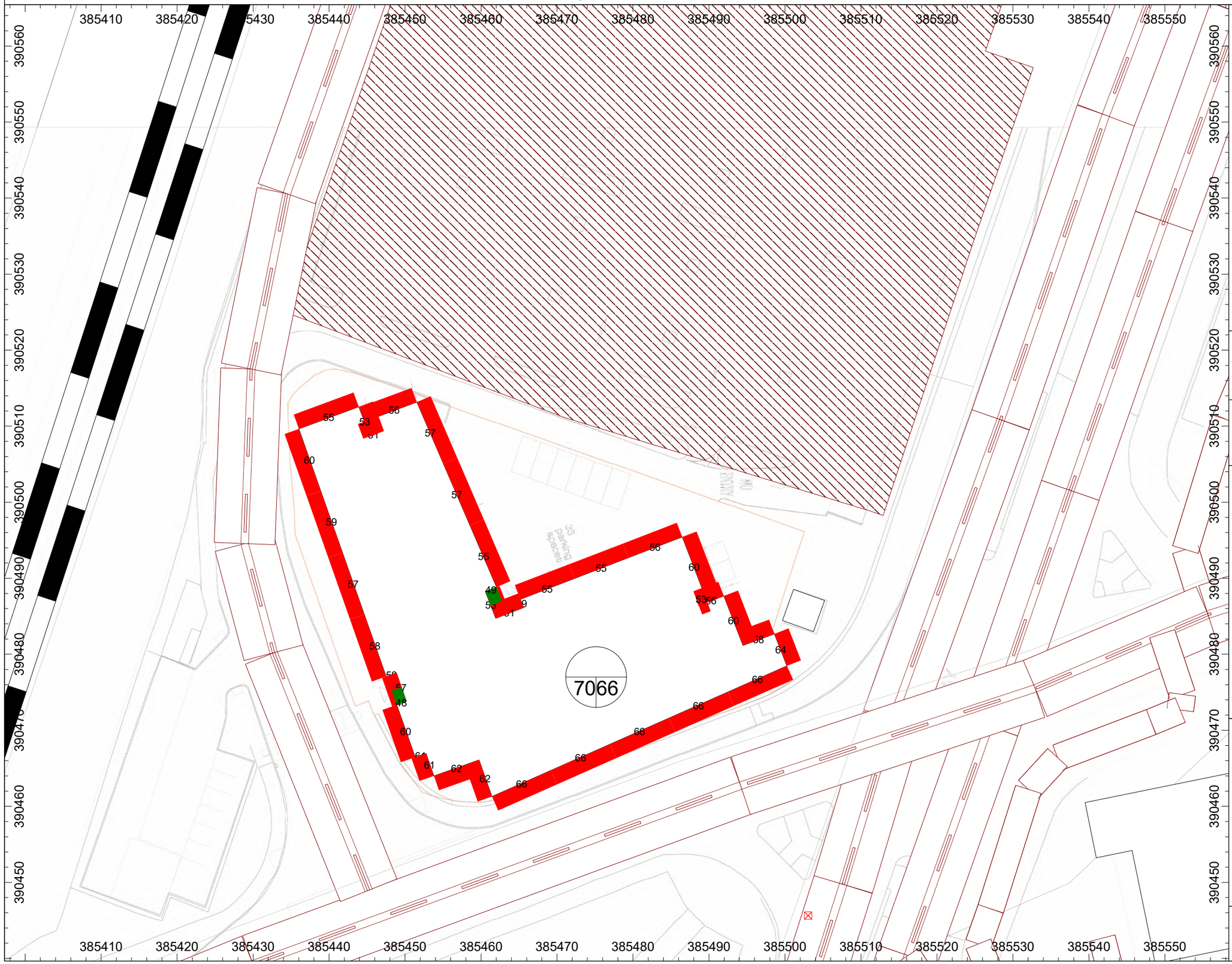
**Noise Map Objects**

- Line Source
- Road
- Parking Lot
- Railway
- Building
- Bridge
- Calculation Area

e3p

Project Engineer: Melissa Bailey
Date: 15/12/2025

## Figure 5 - Part O Requirements - 50 dB Criterion




**Project:**
**Parrs Wood, Didsbury**

**Project-No:**
**50-350**

**Client:**
**Dandara Living Ltd**

**Night-time Noise Level, LAeq, 8hr (dB)**

... <= 50
50 < ...

**Noise Map Objects**

- Line Source
- Road
- Crossing
- Parking Lot
- Railway
- Building
- Bridge
- Building Evaluation
- Calculation Area

e3p

Project Engineer: Melissa Bailey
Date: 15/12/2025

## Figure 6 - Part O Requirements - Maximum Criterion




**Project:**
**Parrs Wood, Didsbury**

**Project-No:**
**50-350**

**Client:**
**Dandara Living Ltd**

**Maximum Noise Level, LAFMax, 2min (dB)**

... <= 65
65 < ...

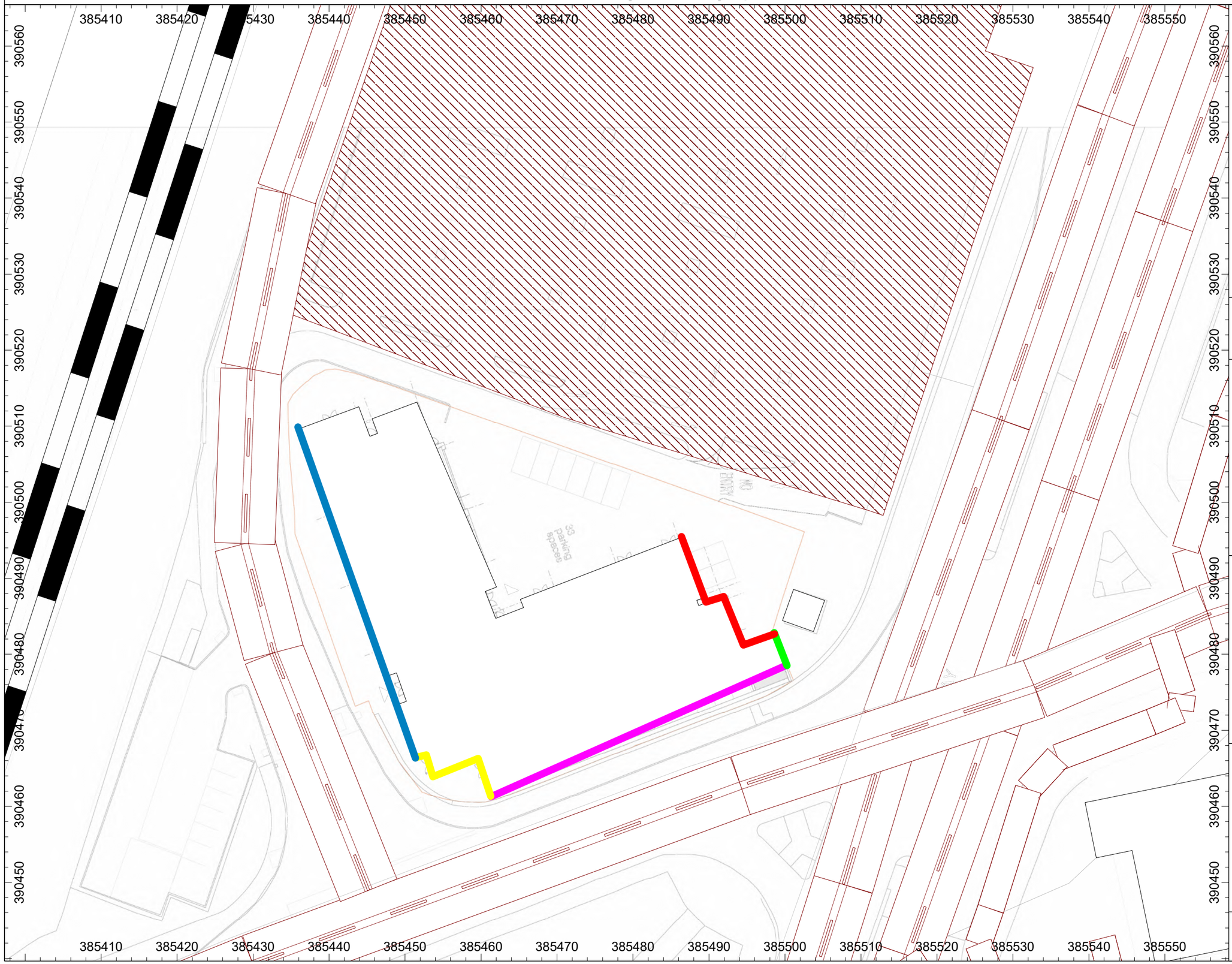
**Noise Map Objects**

- Line Source
- Road
- Parking Lot
- Railway
- Building
- Bridge
- Building Evaluation
- Calculation Area

e3p

Project Engineer: Melissa Bailey
Date: 15/12/2025

**Figure 7 - Glazing requirements**




**Project:**
**Parrs Wood, Didsbury**

**Project-No:**
**50-350**

**Client:**
**Dandara Living Ltd**

**Highlighted facades require higher spec glazing**

- ... <= 42
- 42 < ... <= 45
- 45 < ... <= 47
- 47 < ... <= 50
- 50 < ... <= 52
- 52 < ... <= 55
- 55 < ... <= 57
- 57 < ... <= 60
- 60 < ...

**Noise Map Objects**

- Line Source
- Road
- Parking Lot
- Railway
- Building
- Bridge
- Calculation Area

e3p

Project Engineer: Melissa Bailey
Date: 15/12/2025