
TECHNICAL NOTE

Project **Proposed Development at Roosky Lands, Monaghan Town Centre**

Subject **Noise Impact Assessment Report**

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1.0 INTRODUCTION

This document presents a review of potential environmental noise and vibration impacts in support of the planning application for the proposed development at Roosky Lands, Monaghan Town centre (the Proposed Development). For further details on the Proposed Development, refer to the planning statement report prepared by McCutcheon Halley Planning Consultants.

In terms of potential noise and vibration impacts, the following elements are considered in the assessment:

- Construction Phase, and;
- Operation Phase:
 - Noise from fixed mechanical plant.
 - Noise from day-to-day operation.
 - Noise from traffic.

2.0 ASSESSMENT METHODOLOGY

The following methodology has been adopted for this assessment:

- Reference has been made to the following guidance documents to identify appropriate noise criteria and design targets for both construction and operational phases:
 - *Guidelines for the Treatment of Noise and Vibration in National Road Schemes 2004* Transport Infrastructure Ireland (TII) (formerly National Roads Authority (NRA)) publication
 - *British Standard BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Noise*
 - *British Standard BS 7385: 1993: Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from ground borne vibration.*
 - *British Standard BS 5228: 2009+A1 2014: Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration.*
 - *BS8233: 2014: Sound Insulation and Noise Reduction for Buildings.*
 - *Guidelines for Community Noise (World Health Organisation, 1999).*
 - *Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities 2016” (NG4)* Environmental Protection Agency.
 - *British Standard BS 4142: 2014: Methods for rating and assessing industrial and commercial sound.*
- Measure representative baseline noise levels in the vicinity of the Proposed Development to identify specific criterion and assess likely noise and vibration impacts.

3.0 EXISTING NOISE ENVIRONMENT

AWN undertook an environmental noise survey to quantify the existing noise environment. The survey was conducted in general accordance with ISO 1996: 2017: *Acoustics – Description, measurement and assessment of environmental noise*.

The noise survey was undertaken at four locations on the site. One of the survey positions was unattended to measure typical baseline noise levels over the day and night period. Attended surveys were carried out at three locations. The selected measurement positions are described in the following sections and indicated in Figure 1.

The chosen survey locations were suitable for determining the typical baseline incident noise level at the proposed development, as well as the baseline noise at the nearest noise-sensitive locations (NSLs). The measurement positions are situated away from the surrounding road network and any specific sources of noise in the environment. They are considered to provide a conservative representation of the baseline noise at all NSLs in proximity to the site boundary.

3.1 Unattended Monitoring Position

NML1 Located at an elevated point on the site at a height of 3.5 m. The position is representative of incident noise to the site and background noise levels in the surrounding environment.

3.2 Attended Positions

NML2 - 4 The attended measurements were undertaken in proximity to the boundary of the site close to the nearest NSLs. Photographs were taken of each monitor setup which can be seen in Figures 2 – 5.



Figure 1 Noise monitoring locations at the proposed site



Figure 2 Noise Measurement Location 1 (Unattended)



Figure 3 Noise Measurement Location 2 (Attended)



Figure 4 Noise Measurement Location 3 (Attended)



Figure 5 Noise Measurement Location 4 (Attended)

3.3 Survey Periods

At NML1 continuous noise measurements were logged at intervals of 5 minutes between 11:40hrs on Tuesday 7 March 2023 and 10:05 on Wednesday 8 March 2023.

The attended surveys (NML-2, 3 and 4) were carried out during the afternoon of Tuesday 7 March. Three 15-minute measurements were conducted at each location with a rotation between each location once the 15-minute measurement was completed.

The weather during the period was cold but dry, overcast with some light frost overnight which was visible on collection of the unattended equipment the following morning.

3.4 Personnel and Instrumentation

AWN staff installed and collected the noise and vibration monitoring equipment. The following instrumentation was used in conducting the noise and vibration surveys.

Equipment	Type	Serial Number	Calibration Date
Sound Level Meter (Unattended)	RION NL-52	00586940	March 2022
Sound Level Meter (Attended)	Brüel & Kjær 2250	2818080	August 2021
Sound Calibrator	Brüel & Kjær TYPE 4231	2263026	March 2021

Table 1 Instrumentation Details

3.5 Measurement Parameters

The noise survey results are presented in terms of the following three parameters:

L_{Aeq} is the equivalent continuous sound level. It is a type of average and is used to describe a fluctuating noise in terms of a single noise level over the sample period.

L_{A90} is the sound level that is exceeded for 90% of the sample period. It is typically used as a descriptor for background noise.

L_{Amax} is the Maximum sound level that is measured during the sample period.

L_{Amin} is the Minimum sound level that is measured during the sample period.

The “A” suffix denotes the fact that the sound levels have been “A-weighted” to account for the non-linear nature of human hearing. All sound levels in this report are expressed in terms of decibels (dB) relative to 2×10^{-5} Pa.

3.6 Results and Discussion

3.6.1 Observations on the Noise Environment

There were no significant sources of environmental noise noted in the vicinity of the site. The main source of noise was distant traffic noise, occasional local traffic on the surrounding road network and occasional distant construction site noise.

3.6.2 Measured Noise Levels

The time history of the logged noise data of the unattended meter (NML-1) are presented in Figure 6 over the duration of survey period. Table 2 contains a summary of the results measured by the attended meters (NML-2, 3 and 4).

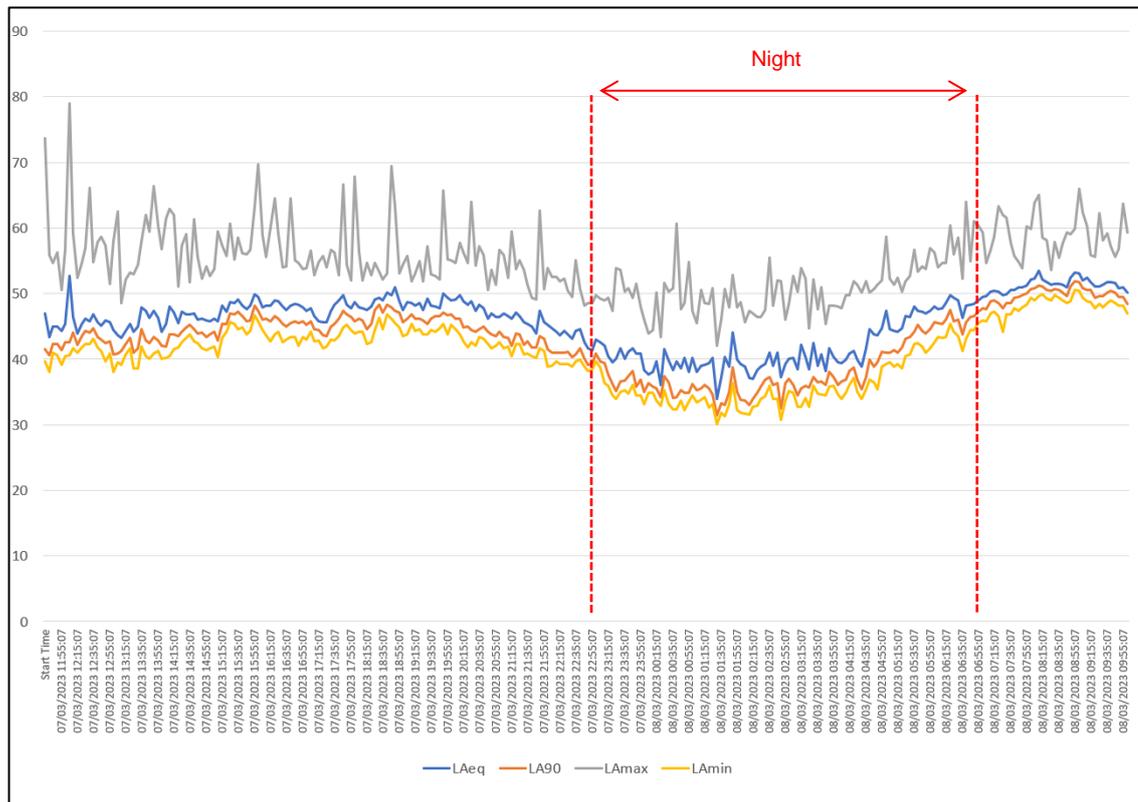


Figure 6 Graph showing measured noise levels at NML-1 (unattended)

3.6.3 Comments on the unattended measured Noise Data at NML-1

Measured ambient noise levels at NML-1 were typically averaging between 45 and 50 dB $L_{Aeq,5-mins}$ during the daytime. There is a steady decline towards the end of the day, with levels dropping below 45 dB $L_{Aeq,5-mins}$ and reaching lows of around 35 dB $L_{Aeq,5-mins}$ during the quiet period of the night. The noise levels begin to rise from around 0300hrs during the night. Consistent but steady noise sources could be noted during the day as a result of the busy town in the distance during the daytime hours.

Location	Measurement	L_{Aeq}	L_{Amax}	L_{Amin}	L_{A90}
NML-2	1	40	56	36	38
	2	41	61	36	38
	3	43	67	38	40
NML-3	1	45	68	39	42
	2	44	56	38	42
	3	46	75	41	44
NML-4	1	39	55	33	35
	2	39	51	34	36
	3	41	56	38	40

Table 2 Summary of measured noise levels at NML-3, 4 and 5 Daytime

3.6.4 Comments on the attended measured Noise Data at NML-2, 3 and 4

A range of 39 to 46 dB $L_{Aeq,15-mins}$ can be observed from Table 2 for the attended measurements. The measure noise levels are consistent which is reflective of the steady noise sources observed on site. There was an instance of a car slowly passing by on the nearest road in NML-2, but this doesn't appear to affect the measurement in any meaningful way. NML-4 is quieter than the other two locations, this area was more screened from the surrounding environment. Overall, the noise levels were low with little interference at the time of the survey.

4.0 ASSESSMENT CRITERIA

4.1 Construction Phase

There is no published statutory Irish guidance relating to the maximum permissible noise level that may be generated during the construction phase of a project. Local authorities normally control construction activities by imposing limits on the hours of operation and consider noise limits at their discretion.

4.1.1 Noise

TII Guidelines

In the absence of specific noise limits, appropriate criteria relating to permissible construction noise levels for a development of this scale are taken from Transport Infrastructure Ireland (TII) (formerly National Roads Authority (NRA)) publication *Guidelines for the Treatment of Noise and Vibration in National Road Schemes 2004* which contains information on the permissible construction noise levels for various hours of operation. The noise level limits are outlined in Table 3.

Period	Noise Levels (dB re. 2×10^{-5} Pa)	
	$L_{Aeq}(1hr)$	L_{Amax}
Monday to Friday 07:00 to 19:00hrs	70	80
Monday to Friday 19:00 to 22:00hrs	60*	65*
Saturdays 08:00 to 16:30hrs	65	75
Sundays & Bank Holidays 08:00 to 16:30hrs	60*	65*

Table 3 Maximum Allowable Construction Noise Levels at Dwellings

Note * Construction activity at these times, other than that required for emergency works, will normally require the explicit permission of the relevant local authority.

BS5228

Potential noise impacts during the construction phase of a project are often assessed in accordance with *British Standard BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Noise*.

BS5228-1:2009+A1 gives several examples of acceptable limits for construction or demolition noise, the most simplistic being based upon the exceedance of fixed noise limits. For example, paragraph E.2 states:

“Noise from construction and demolition sites should not exceed the level at which conversation in the nearest building would be difficult with the windows shut.”

Paragraph E.2 goes on to state:

“Noise levels, between say 07.00 and 19.00 hours, outside the nearest window of the occupied room closest to the site boundary should not exceed:

70 decibels (dBA) in rural, suburban areas away from main road traffic and industrial noise;

75 decibels (dBA) in urban areas near main roads in heavy industrial areas”.

For residential properties it is considered appropriate to adopt the 70 dB(A) criterion for periods between 07:00hrs to 19:00hrs Monday to Friday and 65 dB(A) criterion for periods between 08:00hrs to 16:30hrs on Saturdays.

The proposed hours for normal construction activities are set out in the Construction and Environmental Management Plan prepared by DBFL. These hours are 07:00hrs to 19:00hrs Monday to Friday and 08:00hrs to 14:00hrs on Saturdays. No working will be allowed on Sundays and Public Holidays. Subject to the agreement of the local authority, out of hours working may be required for utility connections, roadworks on existing roads, resurfacing works etc.

4.2.1 Construction Phase Vibration

Vibration standards come in two varieties: those dealing with human comfort and those dealing with cosmetic or structural damage to buildings. In both instances, it is appropriate to consider the magnitude of vibration in terms of Peak Particle Velocity (PPV).

Humans are particularly sensitive to vibration stimuli and that any perception of vibration may lead to concern. In the case of road traffic, vibration is perceptible at around 0.5 mm/s and may become disturbing or annoying at higher magnitudes. However, higher levels of vibration are typically tolerated for single events or events of short duration. For example, rock breaking and piling, two of the primary sources of vibration during construction, are typically tolerated at vibration levels up to 12 mm/s and 6 mm/s respectively. This guidance is applicable to the daytime only; it is unreasonable to expect people to be tolerant of such activities during the night.

Guidance relevant to the protection of building structures is contained in the following documents:

- British Standard BS 7385: 1993: Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from ground borne vibration, and;
- British Standard BS 5228: 2009+A1 2014: Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration.

Both standards contain the same guidance relating to building damage criteria. The standards note that the risk of cosmetic damage to residential buildings starts at a Peak Particle Velocity (PPV) of 15mm/s at 4Hz rising to 20mm/s at 15Hz and 50mm/s at 40Hz and above for unreinforced or light framed structures. The standard also notes that below 12.5mm/s PPV the risk of damage tends to zero.

Taking the above into consideration the vibration criteria in Table 4.

Allowable vibration (in terms of peak particle velocity) at the closest part of sensitive building to the source of vibration, at a frequency of		
Less than 4Hz	15 to 40Hz	40Hz and above
12 mm/s	20 mm/s	50 mm/s

Table 4 Construction Vibration Maximum Allowable Levels

Following review of the guidance documents set out above the values in Table 4 are considered appropriate for this assessment.

4.2 Operational Phase Noise

4.2.1 Noise from Day-To-Day Operations

Appropriate guidance for acceptable internal ambient noise levels is contained within BS8233: 2014: *Sound Insulation and Noise Reduction for Buildings*. This standard recommends indoor ambient noise levels for dwellings as follows:

Activity	Location	Day 07:00 to 23:00hrs dB L _{Aeq,16hour}	Night 23:00 to 07:00hrs dB
Resting	Living room	35	–
Dining	Dining room/area	40	–
Sleeping (daytime resting)	Bedroom	35	30 (L _{Aeq,8hour})

Table 5 Indoor ambient noise levels for dwellings from BS8233: 2014

The BS 8233:2014 values are broadly in-line with the values as presented in the WHO Guidelines for Community Noise (WHO 1999), which are presented in Table 6.

Specific Environment	Critical Health Effect(s)	dB L _{Aeq, T}	Time Base	dB L _{Amax, F}
Dwelling indoors	Speech intelligibility and moderate annoyance, daytime, and evening	35	16	-
Inside bedrooms	Sleep disturbance, night-time	30	8	45

Table 6 Guidelines for Community Noise (WHO 1999)

The L_{AFmax} is the instantaneous fast time weighted maximum sound level, measured during the sample period, and the 45 dB L_{AFmax} criterion applies to 'single sound events' within bedrooms at night. This guideline is interpreted as the value that individual noise events should not normally exceed.

Referring to the BS 8233:2014 and WHO Guidelines for Community Noise documents, the following daytime and night-time internal noise thresholds have been identified for residential dwellings in the vicinity of Operational Phase plant items:

- 35 dB L_{Aeq, 16 hr} within living rooms and dining rooms during daytime periods (07:00hrs to 23:00hrs).
- 30 dB L_{Aeq, 8 hr} within bedrooms during the night-time period (23:00hrs to 07:00hrs).

For the proposed development it is appropriate to set operational noise limits for proposed development external to NSLs. Based on the internal guidance set out in Table 3 an equivalent external level outside of the NSL can be derived by factoring in the degree of noise reduction afforded by a partially open window. Annex G in BS

8233:2014 comments that, ‘...*If partially open windows were relied upon for background ventilation, the insulation would be reduced to approximately 15 dB...*’

In summary, the following operational noise criteria for day-to-day operation are proposed at NSL properties surrounding the development:

- Daytime (07:00 to 23:00 hours) 55 dB $L_{Aeq,16hour}$
- Night-time (23:00 to 07:00 hours) 45 dB $L_{Aeq,1hour}$

Day-to-day operational noise is taken to be the cumulative noise from all activity associated with the proposed development i.e., onsite activities, deliveries, and fixed plant.

It is also noted that the proposed operational noise limits are comparable to those outlined in Environmental Protection Agency (EPA) document “*Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities*” (NG4 - 2016) (EPA NG4).

4.2.2 Building Services Noise

Once the development becomes operational, a variety of electromechanical plant will be required to service the buildings. Best practice guidance for assessment of building services noise is contained in British Standard BS 4142: 2014: *Methods for rating and assessing industrial and commercial sound*.

For an appropriate BS 4142:2014+A1:2019 assessment it is necessary to compare the measured external background sound level ($L_{A90,T}$) to the rating level ($L_{Ar,T}$) of the various plant items, when operational. Where sound emissions are found to be tonal, impulsive, intermittent or to have other sound characteristics that are readily distinctive against the residual acoustic environment, BS 4142:2014+A1:2019 advises that penalties be applied to the specific level to arrive at the rating level.

The following definitions as discussed in BS 4142:2014+A1:2019 as summarised below:

“*ambient sound level, $L_{Aeq,T}$* ” *equivalent continuous A-weighted sound pressure level of the totally encompassing sound in a given situation at any given time, usually from many sources near and far, at the assessment location over a given time interval, T.*

“*residual sound level, $L_{Aeq,T}$* ” *equivalent continuous A-weighted sound pressure level of the residual sound (i.e. ambient sound remaining at the assessment location when the specific sound source is suppressed to such a degree that it does not contribute to the ambient sound) at the assessment location over a given time interval, T.*

“*specific sound level, $L_{Aeq, T}$* ” *equivalent continuous A-weighted sound pressure level produced by the specific sound source at the assessment location over a given reference time interval, T_r .*

“rating level, $L_{Ar,T}$ ”	<i>specific sound level plus any adjustment for the characteristic features of the sound.</i>
“background sound level, $L_{A90,T}$ ”	<i>A-weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval, T, measured using time weighting F and quoted to the nearest whole number of decibels.</i>

In order to establish an initial estimate of impact, BS 4142 states the following:

Obtain an initial estimate of the impact of the specific sound by subtracting the measured background sound level from the rating level and consider the following.

- a) *Typically, the greater this difference, the greater the magnitude of the impact.*
- b) *A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.*
- c) *A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.*
- d) *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.*

Adverse impacts include, but are not limited to, annoyance and sleep disturbance. Not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact.

The assessment methodology described above (i.e., comparison of rated sound level to background sound level) is quoted in BS 4142 as representing a methodology to ‘*obtain an initial estimate*’ of impact. It is important to note that BS 4142 also comments that ‘*Where the initial estimate of the impact needs to be modified due to the context, take all pertinent factors into consideration*’. BS 4142 provides a list of potential pertinent factors that can influence the ‘initial estimate’. The plant noise assessment conducted in the following sections has been carried out with consideration of the guidance contained in BS 4142 as summarised above. In this instance, the background sound level (measured dB L_{A90}) +4 dB is considered an appropriate design target for building services plant noise subject to the maximum noise limits for day-to-day operations (see section 4.2.1)

4.2.3 Operational Phase Vibration

Considering the distances to the nearest NSL’s to activity on site and the levels of vibration that may be generated by proposed activities, any vibration is expected to be significantly below any thresholds for perceptibility. Therefore, vibration criteria have not been specified for the operational phase of the development.

4.3 **Recommended Operational Criteria**

For day-to-day operation of the Proposed Development appropriate noise limits have been identified in line with best practice guidance. Day-to-day operational noise is taken to be the cumulative noise from all activity associated with the proposed development i.e., onsite activities, deliveries, and fixed plant.

Following review of relevant guidance and examples of relevant planning permissions, the following noise criteria are proposed for the development at residential noise sensitive locations:

- Day to Day Operation (Noise Sensitive Location Daytime) 55 dB $L_{Ar,15min}$
- Day to Day Operation (Noise Sensitive Location Night) 45 dB $L_{Aeq,15min}$

A penalty of 5 dB for tonal and/or impulsive elements is proposed to be applied to the daytime and evening measured $L_{Aeq,T}$ values to determine the appropriate rating level ($L_{Ar,T}$).

During the night-time period no tonal or impulsive noise from the facility should be clearly audible at any NSL.

Building services plant noise will be assessed in accordance with British Standard BS 4142: 2014: *Methods for rating and assessing industrial and commercial sound*.

5.0 NOISE IMPACT ASSESSMENT

5.1 Comments on Construction phase

5.1.1 Noise

A variety of items of plant will be in use for the purposes of site clearance/groundworks, and construction. There will be vehicular movements to and from the site that will make use of existing roads. During certain periods of the construction there will be a potential for the generation of elevated levels of noise due to the nature of the activities. It is envisaged that some periods would be noisier than others, and the greatest potential for noise impact will be when construction works occur along the boundary in proximity to NSLs.

The construction programme will create typical construction activity related noise onsite. Indicative ranges of noise levels associated with construction may be calculated in accordance with the methodology set out in *BS 5228-1:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Noise*. This standard sets out sound power / sound pressure levels for plant items normally encountered on construction sites, which in turn enables the prediction of noise levels.

For construction works associated with activities such as excavation and structural works, including excavators, loaders, rollers, dozers, cranes, generators, concreting works etc. noise levels are typically in the range of 70 to 80 dB L_{Aeq} at 10 m. In the context of the civic office building the nearest noise sensitive location at the closest point is approximately 20 m.

Indicative noise calculations have been conducted, assuming that plant items are operational 66% of the time. Screening from a standard site hoarding of 2.4 meters is considered at the site boundaries between the civic office building and the nearest noise-sensitive locations (NSLs). It should be noted that, for the majority of the time, plant and equipment will be located at a greater distance from the nearest NSLs than those used in the calculations, and consequently construction noise levels will be lower.

The calculated construction noise levels at the nearest noise-sensitive location (NSL), specifically at a distance of 20 meters, are determined to be 67 dB, which falls below the criterion outlined in section 4.1.1. There is a possibility that the construction noise

threshold could be exceeded at distances less than 20 meters, depending on the actual construction activities being carried out. However, it's important to note that the duration of these activities will be limited within the overall construction phase of the project, and the majority of construction work will take place at distances greater than 40 meters from the closest NSLs. Notwithstanding, the main contractor will be responsible for managing and monitoring construction noise and vibration following the procedures and proposed threshold limits outlined in the CEMP. Where practicable, mitigation measures shall be employed reduce the risk of significant impacts at nearby receptor locations.

5.1.2 Vibration

The main potential source of vibration during construction is typically associated with rock breaking. Rock breaking is not anticipated at the site but may be requirement should rock be encounters during striping and excavations.

Empirical data for this activity is not provided in the BS 5228-2 standard, however the likely levels of vibration from this activity are expected to be significantly below the lower adopted criteria for building damage based on experience from other sites. Therefore, it is expected that vibration levels will be below the proposed threshold for all construction activities.

5.1.3 Mitigation

The contractor for the works will ensure that all best practice measures relating to the control and minimisation of noise and vibration are employed during all phases of work. With regard to construction activities, best practice operational and control measures for noise and vibration from construction sites are found within BS 5228 (2009 +A1 2014) Parts 1 and 2. Full details are provided in the Construction and Environmental Management Plan (CEMP).

5.2 **Operational phase**

5.2.1 Comment on Day-to-Day Operational Noise

The proposed development will be designed and operated to ensure compliance with the proposed day-to-day operational noise limits set out in section 4.2.1

The only sources of potential on site noise are fixed mechanical plant needed to service the building (assessed in section 5.2.2) and noise typically associated with cars coming to and from the site, and occasional deliveries and collections. Considering the nature of the development and the fact that it will operate during daytime office hours only there are no significant noise impacts likely to arise from the operation of the proposed development. No specific mitigation measures are needed.

5.2.2 Building Services Noise

All items of plant will be fully enclosed within plant enclosures with the exception of two heat pumps. The heat pumps are therefore the only items of external plant proposed for the development with the potential to generate noise impacts to the surrounding environment.

These are the two heat pumps that will be installed within the 'external plant enclosure' as indicated on the architects' drawings ref: MCC-XX-RL-DR-HJL-AR-0010. The plant is enclosed on all side but open to the atmosphere above see Figure 7.

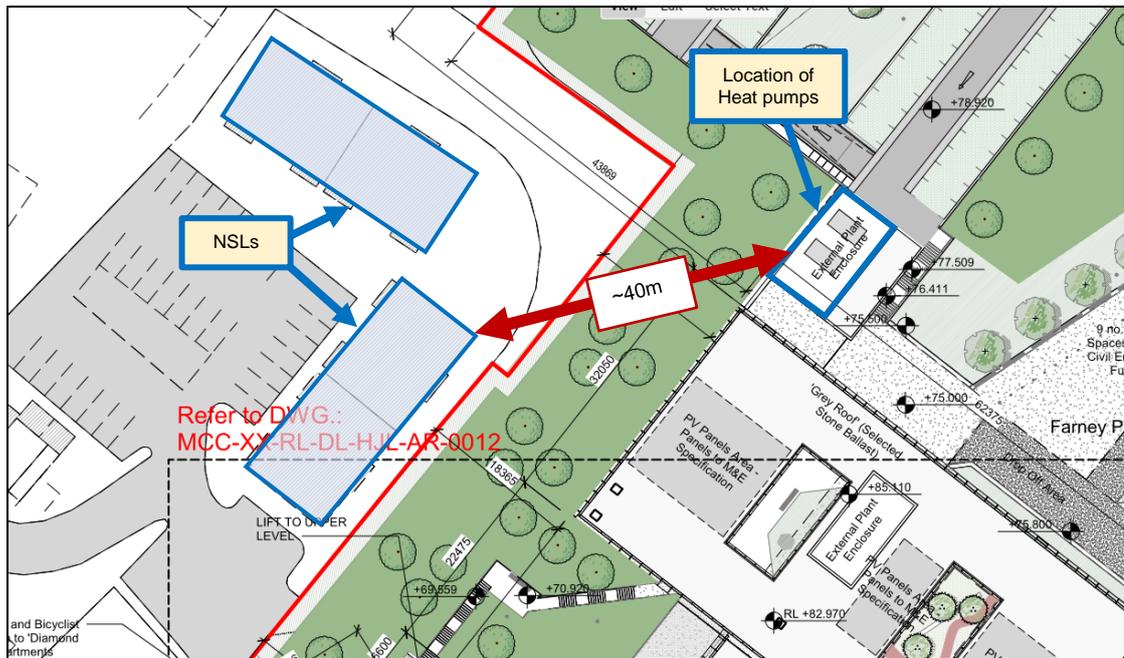


Figure 7 Location of External Plant and Nearest NSLs.

Table 7 outlines typical noise emission source data for the proposed plant items that has been provided by the Homan O'Brien Consulting Engineers. It is understood that plant will typically operate during daytime hours however, there may be requirements for occasional night time operation.

Plant Item (Unit)	Sound Power Emission Level
Heat Pump (x2)	87 dB(A) L _{WA}

Table 7 Proposed Building Services Equipment Noise Level

Using the emission data in Table 7 the specific noise level of the mechanical plant has been calculated to the nearest noise sensitive location NSL which is at Diamond Centre approximately 40m. Noise prediction calculations have been carried out in general accordance with *ISO 9613-2:1996 Acoustics - Attenuation of sound during propagation outdoors - Part 2: General method of calculation* from the plant enclosure. The calculations consider the maximum noise emissions from the plant items, the noise attenuation provided by the enclosure walls and topography between the plant and the nearest NSL.

The predicted plant noise level at the nearest NSL is 45 dB(A), which is well below the day-to-day operational noise criteria for daytime periods and within the limits for night time periods set out in Section 4.3.

If the plant is required to operate at night this is most likely to occur during the early morning periods between 0500 – 0700hrs when background noise levels are elevated. Furthermore during these periods it is expected that the plant will operate at a reduced capacity resulting in lower operational noise emissions.

It is confirmed that the predicted noise from new mechanical plant at the nearest noise sensitive locations will not give rise to adverse impacts at noise sensitive locations when assessed in accordance with the British Standard BS 4142: 2014 methodology described in Section 4.2.2.

5.2.3 Additional Traffic on Existing Roads

An assessment of the noise impacts from the addition of traffic on public roads arising from the proposed development has been undertaken. Reference has been made to traffic flow data prepared by DBFL Consulting Engineers to inform this review.

The methodology from the TII publication '*Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes, 2014*,' has been used to screen road links from the assessment where the increase in the AADT (Average Annual Daily Traffic) for the link is less than 25%. An increase in the AADT greater than 25% would indicate a potential increase in associated traffic noise level of 1 dB.

Traffic flow data has been provided for eight road links on the surrounding network. On all but one of these links, the potential impact is negligible as the increase in traffic volumes is $\leq 3\%$. The link with increases $>25\%$ is the '*Sli Ogie Ui Dhufaigh*' road link and the nearest NSL (Noise Sensitive Location) is located approximately 18 m from the edge of the road (refer to Figure 7).

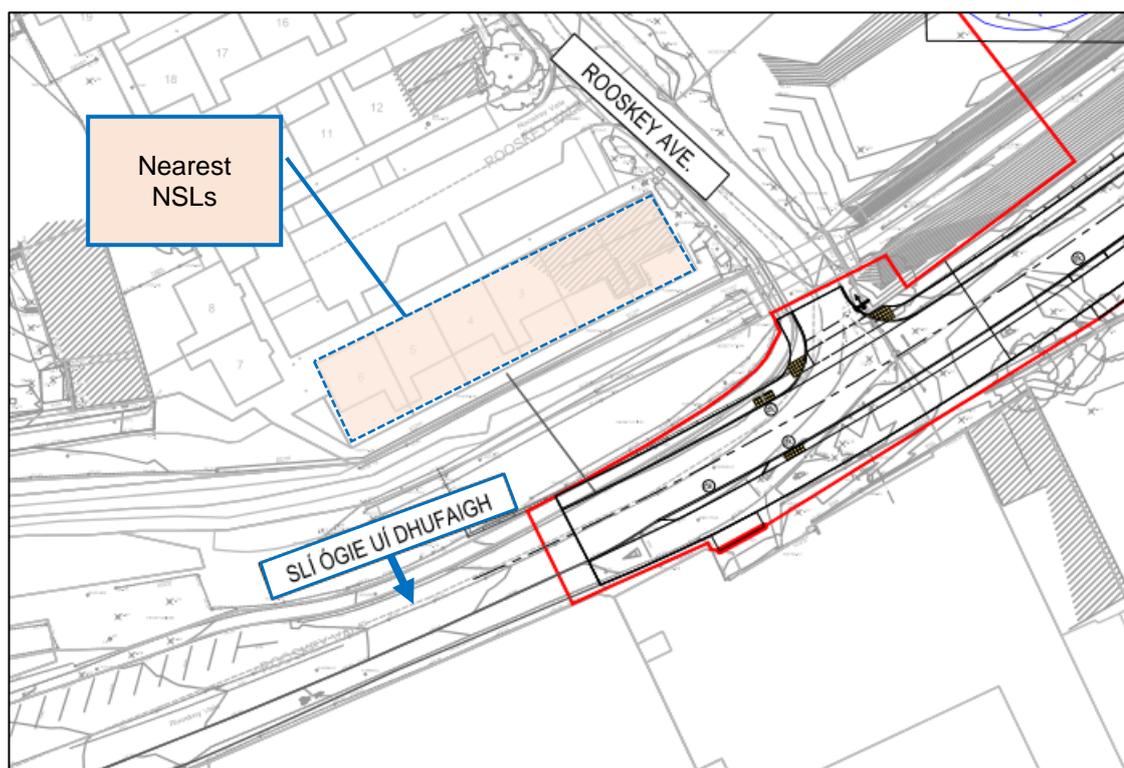


Figure 7 Sli Ogie Ui Dhufaigh Road Link and Nearest NSLs

Along the '*Sli Ogie Ui Dhufaigh*' link the traffic volumes are predicted to increase from 100 AADT for the year 2025 in the "*do minimum*" scenario (without the proposed development), compared to 321 AADT for the year 2025 in the "*do something*" scenario (with the proposed development). These traffic flows are relatively low, and it is therefore appropriate to calculate levels of road traffic noise at the nearest NSL to the '*Sli Ogie Ui Dhufaigh*' road link to assess the potential impacts.

Calculations have been undertaken to determine the level of road traffic noise at the nearest NSLs as a result of the proposed development. The calculations have confirmed that the predicted noise level at the nearest NSL from all traffic along the '*Sli Ogie Ui Dhufaigh*' link is 44 dB(A). Referring to the measured baseline noise levels in section 3.6, this level of noise is not significant, as it is in line with typical ambient noise

levels measured in the vicinity of the site and well below assessment thresholds identified. It is therefore considered that additional traffic introduced onto the local road network due to the proposed development is not significant.