52 - 66 Salamander Street

Noise Impact Assessment

Client:	Stephen G Dalton & Son
Project/Proposal No:	6716
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Document Information

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Revision History

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Contents

1. Introduction

1.1 Background

This Noise Impact Assessment (NIA) is prepared on behalf of Stephen G Dalton & Son ('the Applicant') who is seeking detailed planning permission for the following description of development: "Demolition of the existing building, and the erection of mixed use development including: residential development (build to rent) and purpose-built student accommodation (PBSA) development with commercial/retail floorspace (Class A1) at street level with associated amenity space, landscaping and cycle parking (the Proposed Development) at 52-66 Salamander Street, Leith, Edinburgh EH6 7LA ('the Application').

This NIA is part of a suite of documents submitted with the Application, as outlined below. These supporting documents are in addition to the formal application documents comprising the accompanying plans, sections, and elevations. The suite of supporting documents comprises:

- **Planning Statement**
- **Pre-application Consultation Report**
- **Design and Access Statement (Inc. Waste Management Plan, Building Adaptability and Amenity Breakdown)**
- **Landscape Statement**
- **Noise Impact Assessment**
- **Air Quality Impact Assessment**
- **Transport Statement**
- **Flood Risk and Drainage Strategy**
- **Geo-environmental Report**
- **Sunlight and Daylight Assessment**
- **Ecological Assessment**
- **Statement of Energy**
- **Archaeological Assessment**

The purpose of this NIA is to assess potential noise impacts of the existing noise environment on new noise sensitive receptors (NSRs) of the Proposed Development, assess potential noise impacts on existing NSRs in the area as a result of the Proposed Development and, where necessary, specify appropriate design solutions to mitigate potential adverse noise conditions. This report presents the findings of the NIA.

1.2 Site Description

The existing site is a metal scrapyard operated by the Applicant. The site boundary is enclosed by Salamander Street to the north, Salamander Place to the west, Pillans Place to the east and existing residential properties to the south. The wider surrounding area includes a mix of residential development and commercial properties. Leith docks is present 350 metres to the north.

The Proposed Development is located within the City of Edinburgh Council (CEC) administrative boundary and will comprise construction of two blocks. The western block (Block A) will be residential with a provision for commercial floorspace on the ground floor. The eastern block (Block B) will be a PBSA with provision for a ground floor gym. The location of the Proposed Development is shown in Drawing 1.

1.3 Scope of Assessment

The scope of this assessment has comprised the following:

- Review of project information;
- Consultation with CEC Environmental Health Department;
- Baseline noise survey;
- Evaluation of existing ambient noise levels against agreed criteria;
- Evaluation of predicted operational noise levels from Air Sourced Heat Pumps (ASHPs) against agreed criteria;
- Evaluation of operational noise levels from Leith Docks, Bubbles Car Wash and the proposed substation against agreed criteria; and
- Specification of mitigation where necessary.

We expect that construction noise impacts may be minimised by appropriate controls on working hours, specification of appropriate plant and methods and implementation of best practices. As such, evaluation of construction phase noise impacts has been scoped out of this assessment.

The Proposed Development includes minimal/no car parking spaces. On that basis we therefore propose to scope out the assessment of the change in road traffic noise associated with the Proposed Development. No significant proposed vibration sources have been identified in the study area for either the construction or operational phases. CEC requested that vibration from commercial uses, particularly the gym, is imperceptible within noise/vibration sensitive rooms. The applicant will install vibration isolating floors/floor coverings on the floors of the gym that will ensure that vibration is imperceptible. On that basis we have scoped out the consideration of potential vibration impacts.

1.4 Study Area and NSRs

The study area considered in this assessment has comprised the site itself and the neighbouring residential properties to the south and west. Representative off-site NSRs have been selected as the closest top floor windows on the façade of the southern and western residential buildings, as these are the closest to the proposed ASHPs.

Representative proposed NSRs have been selected as the windows of the Proposed Development that take the closest approach to the noise sources considered; the rooftop plant, road traffic, car wash, ships from Leith Docks and the proposed substation. The study area and NSRs considered are shown in Drawing 1 and listed in Table 1.

Table 1 - Representative NSRs

NSR / status	NSR description/rationale for selection
NSR1 - proposed	7th floor window most affected by noise from ASHPs on the eastern façade of Block A
NSR2 - proposed	7th floor window most affected by noise from ships on the northern façade of Block A
NSR3 - proposed	6th floor window most affected by noise from the car wash on the northern façade of Block B
NSR4 - existing	1st floor window most affected by noise from the proposed substation on the eastern façade of Block B

1.5 Building Acoustics

This assessment additionally considers rooms within the Proposed Development that could be sensitive to noise emanating from the proposed ground floor gym (Block B) and the proposed commercial space (Block A). The gym has a floor space of 75 m^2 and the commercial space has a total floor space of 139 m^2. Both the gym and commercial space are below studios which will be occupied by residents.

2. Relevant Guidance and Advice

2.1 British Standard BS 8233:2014 Guidance on Sound Insulation and Noise Reduction for Buildings

BS8233:2014 provides guidance on the control of noise in and around buildings. The standard sets out acceptable noise levels for new and refurbished buildings and amenity areas according to their use.

For external amenity areas BS8233:2014 specifies a "desired" level of 50 dB $L_{Aeq,T}$ and an "upper guideline level" of 55 dB $L_{Aeq,T}$. It is acknowledged within the standard that "*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, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited.*"

The standard provides noise limits for rooms within buildings by type of use; (bedroom, living room, office) and by time of day. This assessment refers to habitable rooms, which comprises bedrooms and living rooms.

Methods are provided for simplified calculation of internal noise levels from external levels, and for detailed calculations. The simplified method relies on a reduction to façade levels provided either by open or closed windows, which are assumed to provide attenuation of approximately 15 dB and 33 dB respectively.

The standard also specifies that a correction of 5 dB must be applied in presence of pink noise such as noise from road traffic. Pink noise is a 'random' noise which has equal energy per octave band, and therefore contains higher levels of low frequency noise than white noise, and is more representative of noise from road traffic. The attenuation for open and closed windows for traffic noise are therefore 10 and 28 dB respectively.

BS8233 also provides a graphical method for rating a noise by comparing the noise spectrum with a family of noise rating curves (NR curves).

2.2 British Standard BS 7445:2003 Description and measurement of Environmental Noise

BS7445 provides a minimum specification for instrumentation for surveys, along with recommendations for appropriate weather conditions and observations to note.

2.3 ISO 9613: Attenuation of Sound during Propagation Outdoors, Part 1 and Part 2

ISO 9613 describes a method for calculating the attenuation of sound during propagation outdoors in order to predict levels of environmental noise at a distance from a variety of sources. The method predicts the equivalent continuous A-weighted sound pressure levels under meteorological conditions.

3. Method

3.1 Consultation with CEC Environmental Health

ITPEnergised corresponded with CEC's Environmental Health Department in October 2023 to agree the scope and method of the NIA. We agreed that closed window attenuation could be used to derive internal levels against road traffic noise, however open window attenuation should be used for commercial and industrial sources. Environmental Health provided further advice, outlining that existing industrial/commercial noise sources in the area around the Proposed Development that should be assessed as part of the NIA. A record of correspondence is provided in Appendix A.

3.2 Assessment of Impacts

3.2.1 Overall Approach to Assessment

The Proposed Development will introduce new NSRs to the area and comprises ASHPs that may impact on nearby existing receptors. Potential impacts on proposed on-site NSRs have been assessed through comparison of measured baseline noise levels against criteria outlined in BS8233, which provides guidance on acceptable upper limits for ambient noise levels in habitable rooms.

Potential impacts at proposed and existing off-site NSRs have been assessed through comparison of predicted noise levels from the industrial / commercial noise sources against the noise rating (NR) values outlined in BS8233 and specified by CEC.

Further consideration has been given to the potential noise impacts from the proposed ground-floor gym of the Proposed Development on the residents within the building. Noise from ships at Leith Docks, power washing of cars at the existing Bubbles Car Wash and noise from the proposed substation have also been considered.

3.2.2 Characterisation of the Baseline Noise Environment

ITPEnergised attended the site to undertake a baseline survey on the 17th and 18th October 2023. Images from the site visit are included in Appendix B.

Monitoring was undertaken in accordance with the method provided in BS7445, using a Rion NL-52 Class I integrating sound level meter (SLM). Conditions were cold, still and dry at the time of the survey. The SLM was within its laboratory calibration period, and a calibration check was performed before and after each measurement, with no significant drift in calibration noted.

Measurements were undertaken during the daytime (07:00 – 23:00) and night-time (23:00 – 07:00) at a single external noise monitoring position (NMP). NMP1 is shown in Drawing 1.

3.2.3 Prediction of Rooftop Plant Operational Noise Levels

Sound power data for the proposed ASHPs has been obtained from library data held on file by ITPEnergised. The location of proposed ASHPs is currently unknown, however in this type of development these items of plant are normally located at roof level. In a robust approach, three ASHPs units have been modelled on the roof of Block A and six ASHPs on the roof of Block B. Block B is larger than Block A and has therefore been allocated more ASHP units. The adopted levels are given in Table 2 and the manufacturer datasheets for both are provided in Appendix C.

Table 2 - Proposed heat pump sound data

Item	Unweighted sound pressure level at 1 m, dB								A-weighted broad-band sound power level, dBA
	63	125	250	500	1k	2k	4k	8k	
Mitsubishi Ecodan ASHP Unit	71	58	59	56	52	48	44	39	71

We have modelled the proposed roof-mounted ASHPs in noise prediction software CadnaA in accordance with the prediction method provided in ISO9613.

The units have been included as point sources on the roofs of Block A and Block B. The point sources have been modelled at a height of 0.5 m above roof level.

The Proposed Development has been modelled as a 21 m high (seven storey) building. The heights of surrounding buildings and sound-reflective elements have been scaled based on our observations and photos taken during the baseline survey and maps/satellite imagery.

We have modelled NSRs as receptors at locations representative of facades of the closest residential dwellings to the Proposed Development, and facades of the Proposed Development itself.

Our model assumes a standard temperature of 10°C and humidity of 70%, and hard ground conditions, with absorption set to G=0. The model considers screening provided by local topography in the form of 50m DTM. Additionally, we have set the maximum order of reflection to three and assumed a 2 dB reflection loss for all modelled buildings.

3.2.4 Prediction of Operational Noise from Ships at Leith Docks

Noise from ships at Leith Docks has been predicted using previously measured noise data held on file by ITPEnergised (see Appendix C). Leith Docks lies approximately 350 m to the north of the Proposed Development. One ship has been modelled running continuously as a point source with an effective height of 10 m.

3.2.5 Prediction of Operational Noise from Bubbles Car Wash

We have predicted noise levels from power washing at the existing car wash which lies approximately 120 m to the north-east of the Proposed Development. Two power washers have been modelled running simultaneously as point sources with an effective height of 1.5 m using noise data held on file by ITPEnergised (see Appendix C).

3.2.6 Prediction of Operational Noise from Proposed Substation

Noise from the proposed substation in the south-east corner of the Proposed Development has been modelled using measured noise data held on file by ITPEnergised (see Appendix C). The proposed substation will be housed in a building which will likely contain a transformer and other ancillary equipment. Noise from the substation has been modelled as vertical area sources on each façade.

3.2.7 Noise from Proposed Lifts

We chose representative spectra for noise of a lift within a lift shaft, and sound reduction of a typical lift shaft. We compared these to assess the resulting noise impact exterior to the lift.

Data from a study into lift noise (*Noise produced by lift in multi-story apartment building, case study*, Torres & Haugen, 2019, Madrid Internoise 2019) giving octave band noise levels for lifts within lift shafts has been reproduced in Table 3:

Table 3 - Octave Band Reverberant Sound Pressure Levels, $L_{p,AF,max}$ – Lift in Lift Shaft

Octave Band Level (A weighted)							Data Source
63 Hz	125 Hz	250 Hz	500 Hz	1,000 Hz	2000 Hz	4,000 Hz	
33	50	56	54	60	52	57	Torres & Haugen, 2019

Lift shaft construction typically consists of reinforced cast in situ concrete (2,340kg/m3) of 200 mm thickness which has a sound reduction index as in Table 4.

Table 4 - Example insulation ratings for 200m concrete

Octave Band Centre Frequency (Hz)						
63 Hz	125 Hz	250 Hz	500 Hz	1,000 Hz	2,000 Hz	4,000 Hz
44	44	47	55	62	67	71

3.2.8 Building Acoustics Predictions – Gym and Commercial Space

We have predicted the minimum sound reduction specification for the partitions between the ground floor gym and commercial space within the Proposed Development and the neighbouring rooms, such that noise from the gym and commercial unit are likely to be inaudible. Compliance with NR15 will determine likely inaudibility within the receiving rooms.

Noise levels for the gym and commercial space have been sourced from library data held on file by ITPEnergised. The adopted representative spectrum for the gym and commercial space are provided in Table 5.

Table 5 – Octave Band Sound Pressure Levels – Adopted Internal Noise Spectrum for Proposed Gym and Commercial Space

Adopted Spectrum	Octave Band Level						
	63 Hz	125 Hz	250 Hz	500 Hz	1,000 Hz	2,000 Hz	4,000 Hz
Gym – Amplified music from a bar	94.0	88.0	82.0	77.0	71.0	67.0	61.0
Commercial Space - Source level of noisy bar/ restaurant	68.0	72.0	73.0	74.0	71.0	68.0	62.0

The modelled buildings, all modelled noise sources and receptors are shown in Drawing 1

3.2.9 Adopted Evaluation Criteria

The evaluation criteria used in the assessment are provided in Table 6. In agreement with CEC, we have used closed window attenuation to derive internal levels in the evaluation of road traffic noise, however partially opened window reduction is assumed otherwise.

We note that all existing industrial/commercial developments directly across from the Proposed Development will only operate during the daytime period (07:00 – 23:00).

Table 6 - Summary of Evaluation criteria

Noise Source	Criterion	Guidance
Road traffic noise (measured noise levels)	Internal noise levels within habitable rooms, daytime period: 35 $dBL_{Aeq,16hr}$ to be derived via closed window attenuation	BS8233
	Internal noise levels within habitable rooms, night-time period: 30 $dBL_{Aeq,8hr}$ to be derived via closed window attenuation	
Noise from existing/proposed industrial/commercial noise sources	To meet NR20 in all habitable rooms and external receptors during the night-time period; to be derived via partially open window attenuation	BS8233
All sources	L_{Amax} to not exceed 45 dB more than 10 times in bedrooms during the night-time period	World Health Organization
Noise from proposed gym	Internal proposed gym to meet NR15 in all habitable rooms of the Proposed Development	Directed by CEC

4. Results

4.1 Summary of Baseline Noise Environment

We have determined that the noise environment at the existing site is dominated by road traffic noise from Salamander Street and the surrounding road network. Charts showing measured levels are provided in Appendix B.

A summary of the measured noise levels is provided in Table 7.

Table 7 - Results of the baseline noise survey

NMP / period	Duration, T	Measured noise level, dB			
		Ambient $L_{Aeq,T}$	10th Percentile, $L_{A10,T}$	Background, $L_{A90,T}$	Maximum, L_{AMax}
NMP1 – daytime (07:00 – 23:00)	16 hours	64.5	67.1	53.7	92.8
NMP1 – night-time (23:00 – 07:00)	8 hours	58.0	51.0	41.7	80.0

Note – L_{Amax}, derived internally via closed window reduction of 28 dB, was above 45 dB 61 times during the night-time period, which indicates high likelihood of sleep disturbance. Additional mitigation measures have been provided in Section 5.

4.2 Evaluation of Measured Levels Against Criteria

BS8233 suggests that up to 28 dB reduction may be assumed for closed window attenuation of road traffic noise via thermal double glazing. The measured external noise levels have been used to derive internal noise levels and evaluated against the adopted criteria; the results are presented in Table 8.

Table 8 - Comparison of measured levels with adopted criteria

NMP / period	Ambient, dB $L_{Aeq,T}$	Closed Window Reduction, dB	Criterion, dB $L_{Aeq,T}$	Derived internal level, dB $L_{Aeq,T}$	Resultant excess over criterion, dB
NMP1 daytime (07:00 – 23:00)	64.5	28.0	35.0	36.5	1.5
NMP1 night-time (23:00 – 07:00)	58.0	28.0	30.0	30.0	0.0

Levels presented in Table 8 demonstrate that target indoor levels are slightly exceeded by 1.5 dB, assuming closed window attenuation of the dominant road traffic noise. We note that target indoor ambient levels during the night-time can be met via closed window attenuation. Mitigation measures have been provided in Section 5.

4.3 Industrial/Commercial Noise

4.3.1 Noise from proposed Fixed Items of Plant (ASHPs) – Compliance with NR20

Noise associated with the ASHPs has been evaluated against NR20 at NSR1, which is the façade most affected by ASHP noise. Compliance with criteria at NSR1 denotes compliance at all other NSRs. The findings are provided in Table 9. Negative values denote compliance with NR20.

Table 9 – Predicted levels from proposed ASHPs at representative NSRs

Frequency	Octave Band Level (A weighted)						
	63 Hz	125 Hz	250 Hz	500 Hz	1,000 Hz	2,000 Hz	4,000 Hz
Predicted NSR1 Façade Level	53.9	40.3	40.4	36.7	32.2	28.0	22.9
Predicted Internal Level (open window)	33.9	26.3	26.4	20.7	18.2	11.0	3.9
NR 20 curve	51.3	39.4	30.6	24.3	20.0	16.8	14.4
Margin of Compliance	-17.4	-13.1	-4.2	-3.6	-1.8	-5.8	-10.5

Predicted levels meet the criterion across the range of frequencies.

4.3.2 Prediction of Operational Noise from Leith Docks – Compliance with NR20

Noise from Leith Docks has been evaluated at NSR2. Compliance with criteria at NSR2 denotes compliance at all other NSRs. The findings are provided in Table 10. Negative values denote compliance with NR20.

Table 10 - Predicted levels from ships at representative NSRs

Frequency	Octave Band Level (A weighted)						
	63 Hz	125 Hz	250 Hz	500 Hz	1,000 Hz	2,000 Hz	4,000 Hz
Predicted NSR2 Façade Level	51.3	37.6	29.7	27.5	21.0	9.2	-7.9
Predicted Internal Level (open window)	31.3	23.6	15.7	11.5	7.0	-7.8	-26.9
NR 20 curve	51.3	39.4	30.6	24.3	20.0	16.8	14.4
Margin of Compliance	-20.0	-15.8	-14.9	-12.8	-13.0	-24.6	-41.3

Predicted levels meet the criterion across the range of frequencies.

4.3.3 Noise from Bubbles Car Wash – Compliance with NR20

Noise associated with the power washing of cars at Bubbles Car Wash has been evaluated against NR20 at NSR3. Compliance with criteria at NSR3 denotes compliance at all other NSRs. The findings are provided in Table 11. Negative values denote compliance with NR20.

Table 11 - Predicted levels from bubbles car wash at representative NSR

Frequency	Octave Band Level (A weighted)						
	63 Hz	125 Hz	250 Hz	500 Hz	1,000 Hz	2,000 Hz	4,000 Hz
Predicted NSR3 Façade Level	47.8	31.1	26.6	25.3	24.9	20.8	14.5
Predicted Internal Level (open window)	27.8	17.1	12.6	9.3	10.9	3.8	-4.5
NR 20 curve	51.3	39.4	30.6	24.3	20.0	16.8	14.4
Margin of Compliance	-23.5	-22.3	-18.0	-15.0	-9.1	-13.0	-18.9

Predicted levels meet the criterion across the range of frequencies.

4.3.4 Noise from proposed substation – Compliance with NR20

Noise from the proposed substation has been evaluated at NSR4. Compliance with criteria at NSR4 denotes compliance at all other NSRs. The findings are provided in Table 12. Negative values denote compliance with NR20.

Table 12 – Predicted levels from proposed substation at representative NSR

Frequency	Octave Band Level (A weighted)						
	63 Hz	125 Hz	250 Hz	500 Hz	1,000 Hz	2,000 Hz	4,000 Hz
Predicted NSR4 Façade Level	43.0	52.0	41.6	38.1	27.1	22.6	17.9
Predicted Internal Level (open window)	23.0	38.0	27.6	22.1	13.1	5.6	-1.1
NR 20 curve	51.3	39.4	30.6	24.3	20.0	16.8	14.4
Margin of Compliance	-28.3	-1.4	-3.0	-2.2	-6.9	-11.2	-15.5

Predicted levels meet the criterion across the range of frequencies.

4.3.5 Predicted Noise Levels from Proposed Lifts

Noise impacts in habitable rooms adjacent to the lift shafts have been evaluated against NR20. Internal levels were found to comply with NR20 by a significant margin, assuming that the specification for the concrete lift shaft meets or exceeds that indicated in Section 3.2.7. The findings are provided in Table 13.

Table 13 - Modelled noise levels from lifts and comparison to required levels

Item	Octave Band Level, dB							
	63	125	250	500	1,000 Hz	2,000 Hz	4,000 Hz	1,000 Hz
Lift noise (adopted representative spectrum)	33.0	50.0	56.0	54.0	60.0	52.0	57.0	33.0
Sound reduction (adopted representative spectrum)	44.0	44.0	47.0	55.0	62.0	67.0	71.0	44.0
Attenuated level	-11.0	6.0	9.0	-1.0	-2.0	-15.0	-14.0	-11.0
NR20 curve	51.3	39.4	30.6	24.3	20.0	16.8	14.4	12.6
Margin of Compliance with NR20	-62.3	-33.4	-21.6	-25.3	-22.0	-31.8	-28.4	-62.3

Predicted levels meet the criterion across the range of frequencies.

4.3.6 Noise from the Proposed Ground-Floor Gym – Compliance with NR15

Noise impacts in neighbouring habitable rooms from the proposed ground floor gym have been evaluated against NR15. The minimum octave band noise reductions to be provided by the partition between the gym and neighbouring rooms have been derived and are provided in Table 14.

Table 14 - Evaluation of required partition sound reduction to allow the proposed gym to meet NR15

Item	Item, dB						
	63	125	250	500	1k	2k	4k
Criterion curve							
NR15	47.3	35.0	25.9	19.4	15.0	11.7	9.3
Adopted representative spectrum							
Amplified Music in a Bar	94.0	88.0	82.0	77.0	71.0	67.0	61.0
Comparison; adopted spectrum minus criterion							
Required D_w	46.8	53.0	56.1	58.7	56.0	55.3	51.7
Studio Required R_w	51.5	57.7	60.8	62.8	60.7	60.0	56.4

We note that to achieve NR15 in the studio bedrooms above the gym, a sound reduction R_w of 64 dB is required for the design of the separating floor/ceiling. This scenario, however, has been assessed in a robust approach; in reality, there is no provision for amplified music within the gym and therefore the actual noise levels from the proposed internal gym are expected to be lower than the levels considered in this assessment.

4.3.7 Noise from the Proposed Ground-Floor Commercial Space – Compliance with NR15

Noise impacts in neighbouring habitable rooms from the proposed ground floor commercial space have been evaluated against NR15. The minimum octave band noise reductions to be provided by the partition between the gym and neighbouring rooms have been derived and are provided in Table 15.

Table 15 - Evaluation of required partition sound reduction to allow the proposed gym to meet NR15

Item	Item, dB						
	63	125	250	500	1k	2k	4k
Criterion curve							
NR15	47.3	35.0	25.9	19.4	15.0	11.7	9.3
Adopted representative spectrum							
Source level of noisy bar/ restaurant	68.0	72.0	73.0	74.0	71.0	68.0	62.0
Comparison; adopted spectrum minus criterion							
Required D_w	20.8	37.0	47.1	55.1	56.0	56.3	52.7
Studio Required R_w	22.1	38.3	48.4	56.4	57.3	57.6	54.1

We note that to achieve NR15 in the studio bedrooms above the commercial space, a sound reduction R_w of 61 dB is required for the design of the separating floor/ceiling. This scenario, however, has been assessed in a robust approach; the final commercial use is unknown (proposed Class A1) but is unlikely to be nosier than the adopted spectrum, which came from a very busy bar/restaurant. Noise from the proposed commercial space is expected to be lower than the levels considered in this assessment.

4.4 Further Context

ITPEnergised understands that CEC Environmental Health receives regular noise complaints from existing NSRs regarding noise from the existing scrapyard, which the Proposed Development will replace. Noise from the scrapyard will therefore cease and noise levels at existing NSRs are expected to decrease. The Proposed Development will also screen noise from road traffic at existing residential dwellings which will result in further decreases in noise levels.

This assessment has shown that the relevant noise criteria can be met in the operation of proposed noise sources (ASHPs, substation), and therefore it is unlikely that CEC would receive future noise complaints regarding any noise generated by the Proposed Development following redevelopment of the scrapyard.

5. Committed Mitigation Measures

Measured noise levels indicate that enhanced acoustic glazing along the northern façade of the Block A and Block B of the Proposed Development will be required in order for target internal L_{Amax} noise levels due to road traffic to be met during the night-time period.

Derived internal L_{Amax} noise levels have been evaluated including for the required acoustic glazing in Table 16.

Table 16 - Measured L_{Amax} and Derived Internal Levels – enhanced glazing

NMP / period	Measured Maximum, dB L_{Amax}	Acoustic Glazing Reduction, dB R_w	Criterion, dB $L_{Aeq,T}$	Derived Internal Night-time Level dB, L_{Amax}	Resultant excess over criterion, dB

NMP1 night-time (23:00 – 07:00)	80.0	36.0	45.0	44.0	-1.0

Note – the proposed acoustic glazing will enable internal ambient levels during the daytime and night-time period to comfortably meet target internal levels.

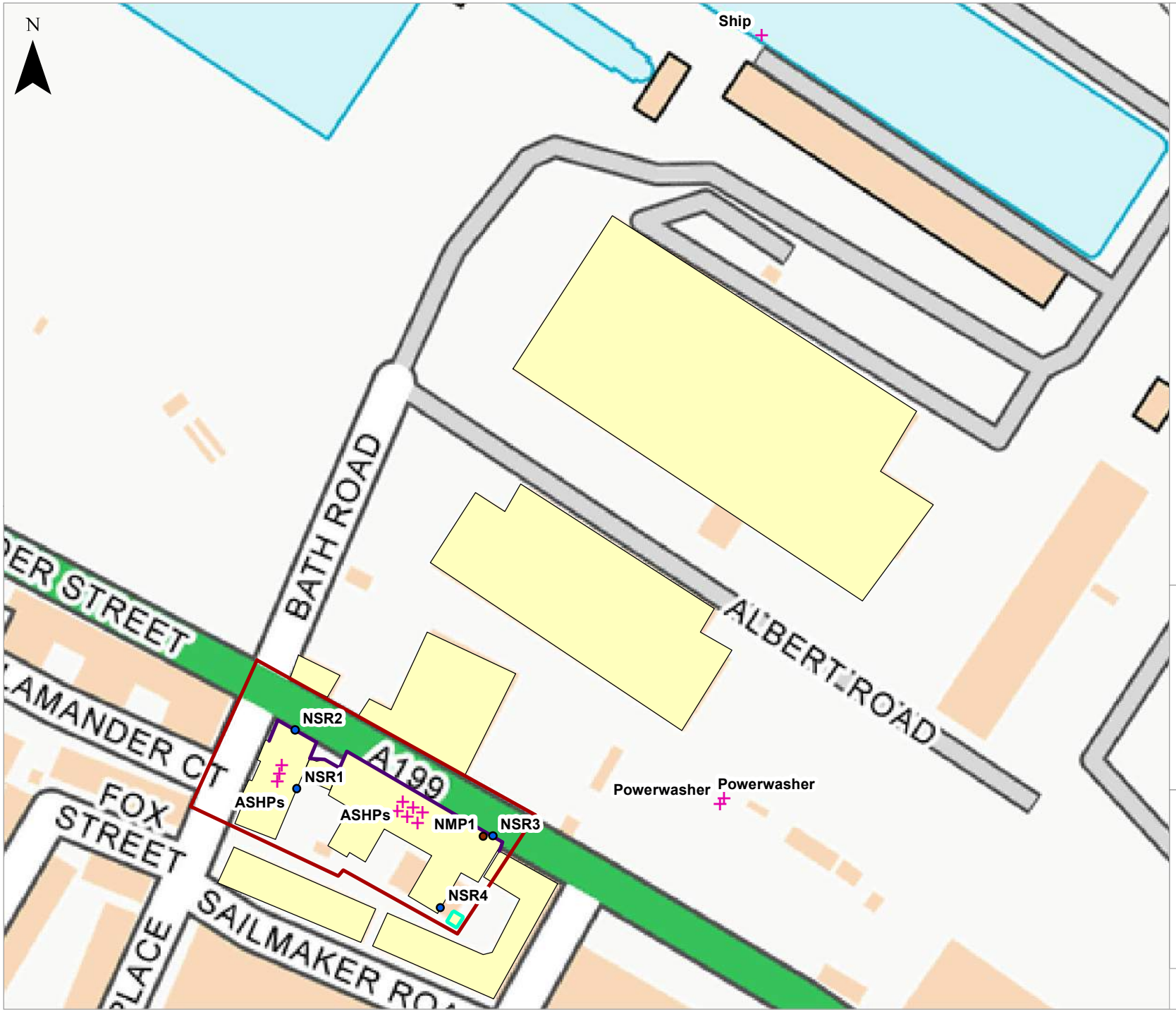
The proposed acoustic glazing will ensure that internal L_{Amax} levels do not exceed 45 dB in habitable rooms on the northern façade of the Proposed Development.

6. Conclusion

ITPEnergised has undertaken a noise impact assessment for the Proposed Development at 52 – 66 Salamander Street, Edinburgh. In the course of the assessment, a baseline noise survey and noise modelling were undertaken, compliance with relevant criteria assessed, noise limits derived for potential external items of fixed plant and appropriate mitigation specified to enable the Proposed Development to meet relevant criteria.

The assessment has made the following conclusions:

- Internal target levels due to traffic noise can be met by a comfortable margin via closed window attenuation on the eastern, western and southern facades of Block A and Block B of the Proposed Development;
- Acoustic glazing has been specified on the northern facades of Block A and Block B to mitigate L_{Amax} noise levels from road traffic;
- Using the octave band levels provided in Table 2, noise levels from continuous operation of proposed ASHP units are predicted to be below NR20 in all existing and proposed NSRs when derived using open window attenuation;
- Using library data held on file by ITPEnergised (see Appendix C) noise from existing and proposed industrial/commercial noise sources (ships, car wash & substation) are predicted to be below NR20 in all existing and proposed NSRs when derived using open window attenuation;
- Noise from the proposed ground floor gym and commercial space is predicted to be below NR15 in the proposed NSRs adjacent and above subject to suitable internal wall and floor constructions.



KEY

- Red Line Boundary
- NMP
- Point Sources
- NSRs
- Acoustic Glazing - 35 dB Rw
- Vertical Area Sources - Proposed Substation
- Modelled Buildings

Coordinate System: British National Grid
Projection: Transverse Mercator

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0 10 20 40 60 80
Meters

1:2,300

ITPENERGISED

Daltons Metals Recycling Site, Salamander Street
Noise Impact Assessment

Drawing 1
NSRs, NMPs & Modelled Items

Date:	Lead:	Review:	Version:
30/10/2023	GM	SW	1.0

Appendix A – Correspondence with Environmental Health

From: Gregor Massie
Sent: Monday, October 2, 2023 8:50 PM
To: Colin Brown [redacted]
Subject: 23/02906/PREAPP - 52-66 Salamander Street, Noise Impact Assessment Scope & Methodology

Good Evening Colin,

We have been appointed to undertake the noise impact assessment (NIA) to accompany the planning application for proposed Purpose Built Student Accommodation (PBSA) development including internal and external amenity spaces at 52-66 Salamander Street, Edinburgh ('the Proposed Development') within the City of Edinburgh Council (CEC) administrative area.

The planning reference for the Proposed Development is 23/02906/PREAPP.

We provide our proposed scope and methodology for the required NIA below.

Proposed Scope

The NIA will be undertaken in accordance with relevant statutory and non- statutory guidance, including PAN 1/2011 and accompanying TAN, relevant British Standards BS8233 and BS4142 (as relevant), and supplementary guidance from CEC (if any).

The existing ambient noise environment at and around the Proposed Development site is likely to be dominated, both day and night, by road traffic on the local road network, in particular Salamander Street.

The proposed scope for the NIA is as follows:

- Consultation with CEC Environmental Health Services to confirm the scope and methodology of the NIA;
- Characterisation of the baseline noise environment by undertaking daytime and night-time noise monitoring at one Noise Monitoring Positions (NMP) – see below;
- Measurement based assessment against relevant guidance criteria;
- Prediction and evaluation of noise from plant associated with the energy strategy for the Proposed Development;
- Prediction and evaluation of noise from existing industrial /commercial activities
- Identification and specification of mitigation measures, as required: these are expected to comprise appropriate minimum glazing and ventilation specification to enable internal target noise levels to be met;
- Production of a stand-alone NIA report and supporting technical figures suitable for submission to CEC.

We note the preapp inquiry response from environmental health, I believe it was yourself who provided this? Apologies if not. Regarding the comments on port noise, ITPEnergised hold noise data on file for engine noise from ships from the work undertaken for the Ocean point project, we would propose using that data for any predictions undertaken, as access to the port near the proposed development is likely to be problematic. Noise from the movement of scrap metal is something we would hope to pick up from our long term measurement on site (we also hold data on file for this type of noise).

With regards to the comments on the existing industrial developments opposite the site, it is my understanding that a proposed residential development has been granted consent subject to conditions. Noted this is a PPP application, but we would consider it likely that the site will be developed and therefore the industrial noise sources will no longer be present. Do you still require us to assess noise from these developments that are likely to be gone by the time the Salamander Street site is built (if consented)? Furthermore, most of these developments will operate during the daytime period only, and it is likely that

the noise environment at the Salamander Street development is dominated by road traffic noise during the daytime period. Lastly please could you point out the car pound to the west that you refer to?

We assume that the change in operational phase traffic will not exceed 25% of the future baseline traffic flows on the local road network. On this basis we propose to scope out the need to assess potential impacts associated with the change in operational phase traffic at existing sensitive receptors.

We assume that construction phase traffic will be of relatively short duration and small magnitude. On that basis it is proposed to scope out the need to assess potential impacts associated with construction phase traffic.

In our experience, noise impacts arising from construction phase activities are of relatively short duration and can generally be mitigated through the implementation of good practice measures. We therefore not proposed to undertake a detailed assessment of construction phase noise impacts.

Assessment criteria

Noise source	Criteria
Ambient noise levels (Road)	**Internal Levels** • 35 dB L_{Aeq} daytime and 30 dB L_{Aeq} night-time in habitable rooms • 45 dB L_{Amax} in bedrooms • Internal levels to be derived using closed window attenuation **External Levels** 55 dB daytime in all formal external amenity areas
Noise from fixed items of plant	Evaluation against NR25 with internal levels derived using open window attenuation.

Baseline Noise Monitoring

Characterisation of the baseline noise environment will be undertaken during the daytime and night-time. It is currently proposed to monitor at the NMP shown on the image below.

Long-term monitoring (i.e. for a period of 24hr or more, likely over a weekend) will be undertaken where possible. Additional spot measurements may be undertaken if deemed necessary. We aim to attend site as soon as favourable weather conditions are forecast.

If you are happy to accept our proposed approach, I would be grateful if you could confirm by response. If you have any comments or queries, please feel free to contact me on my mobile number (see below) or by response to this email.

Kind regards,

Gregor

Gregor Massie| Senior Noise Consultant | ITPEnergised

4th Floor, Centrum House, 108-114 Dundas Street, Edinburgh EH3 5DQ

www.itpenergised.com

From: Gregor Massie <[redacted]
Sent: Wednesday, October 4, 2023 3:42 PM
To: Claire Devlin [redacted]
Subject: FW: 23/02906/PREAPP - 52-66 Salamander Street, Noise Impact Assessment Scope & Methodology

Hi Claire

I sent this on to Colin but ive been informed you responded to the AQ consultation, so forwarding on to you now.

Let me know if you have any queries.

Kind regards

Gregor

Gregor Massie| Senior Noise Consultant | ITPEnergised

4th Floor, Centrum House, 108-114 Dundas Street, Edinburgh EH3 5DQ

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From: Claire Devlin
Sent: Friday, October 6, 2023 3:07 PM
To: Gregor Massie [redacted]
Subject: RE: 23/02906/PREAPP - 52-66 Salamander Street, Noise Impact Assessment Scope & Methodology

Hi Gregor,

Thanks for sending me this on, Colin had also done so.

The below looks fine, couple of points of clarification:

I'm aware of a meeting between the developers and my planning colleagues occurred last week. Concern was raised about the potential street canyons being introduced, as the design has now apparently changed from pre-app stage (where there were gaps in the frontage). You may wish to check with the applicant and run calculations on both scenarios.

If you google 57 Tower Street and then look at the satellite image to the east of where its marked (before you hit Bath Street) that where is appears to be. I think that development on the corner of Bath Street and Salamander Road will actually block that from the proposed site.

I'll double check the planner about the status of the PPP opposite to see if we can take it out of the equation. We have had issues before where permission has not been taken up and it's impacted on another development, so I want to cover all bases.

The proposal is mixed-use with an amenity / commercial aspect. I have not seen any further detail about this from the developer, but this also needs to be assessed, with e.g. normal operations from the proposed areas meeting NR15 in residential parts of the development, and possibly other controls / mitigation needed, dependent on what's proposed.

Are lifts being proposed? If any lifts share party walls with living apartments, we'd look for NR20 to be met.

Many thanks

Claire

Claire Devlin | Environmental Health Officer | Environmental Protection | Regulatory Services | Directorate of Place | The City of Edinburgh Council | G1, Waverley Court, 4 East Market Street, Edinburgh, EH8 8BG | |

From: Claire Devlin
Sent: Thursday, October 12, 2023 3:16 PM
To: Gregor Massie <[redacted]
Subject: RE: 23/02906/PREAPP - 52-66 Salamander Street, Noise Impact Assessment Scope & Methodology

Hi Gregor,

I've discussed with the planner and they agree that the existing uses opposite will need to be inside the scope of the NIA. 21/01163/PPP may never be implanted and planning permission has not yet been released.

Many thanks

Claire

Claire Devlin | Environmental Health Officer | Environmental Protection | Regulatory Services | Directorate of Place | The City of Edinburgh Council | G1, Waverley Court, 4 East Market Street, Edinburgh, EH8 8BG |

From: Claire Devlin [redacted]
Sent: Monday, October 23, 2023 12:24 PM
To: Gregor Massie [redacted]
Subject: RE: 23/02906/PREAPP - 52-66 Salamander Street, Noise Impact Assessment Scope & Methodology

Hi Gregor,

After seeing the plan in more detail at the meeting on Thursday I'm wondering about the gym space and if there will be residential above it? (and also whether it will be open to the public / open all hours). Could that get looked at in terms of limiting vibration issue as well as NR15?

many thanks

Claire

Claire Devlin | Environmental Health Officer | Environmental Protection | Regulatory Services | Directorate of Place | The City of Edinburgh Council | G1, Waverley Court, 4 East Market Street, Edinburgh, EH8 8BG

From: Gregor Massie <Gregor.Massie@itpenergised.com>
Sent: Thursday, October 26, 2023 9:53 AM
To: Claire Devlin <Claire.Devlin@edinburgh.gov.uk>
Subject: RE: 23/02906/PREAPP - 52-66 Salamander Street, Noise Impact Assessment Scope & Methodology

Hi Claire

The gym will be private resident use only and therefore controlled through the tenancy / operator. We can derive a spectrum for the partition so it meets NR15 easily enough. In terms of structural vibration, because the gym is ground floor and student flats are above the gym, so transfer of any vibration is less than that if flats were to be below. At this stage all we can say is that the applicant will install suitable vibration isolating floor/resilient underlay.

Kind regards

Gregor

Gregor Massie| Senior Noise Consultant | ITPEnergised

4th Floor, Centrum House, 108-114 Dundas Street, Edinburgh EH3 5DQ

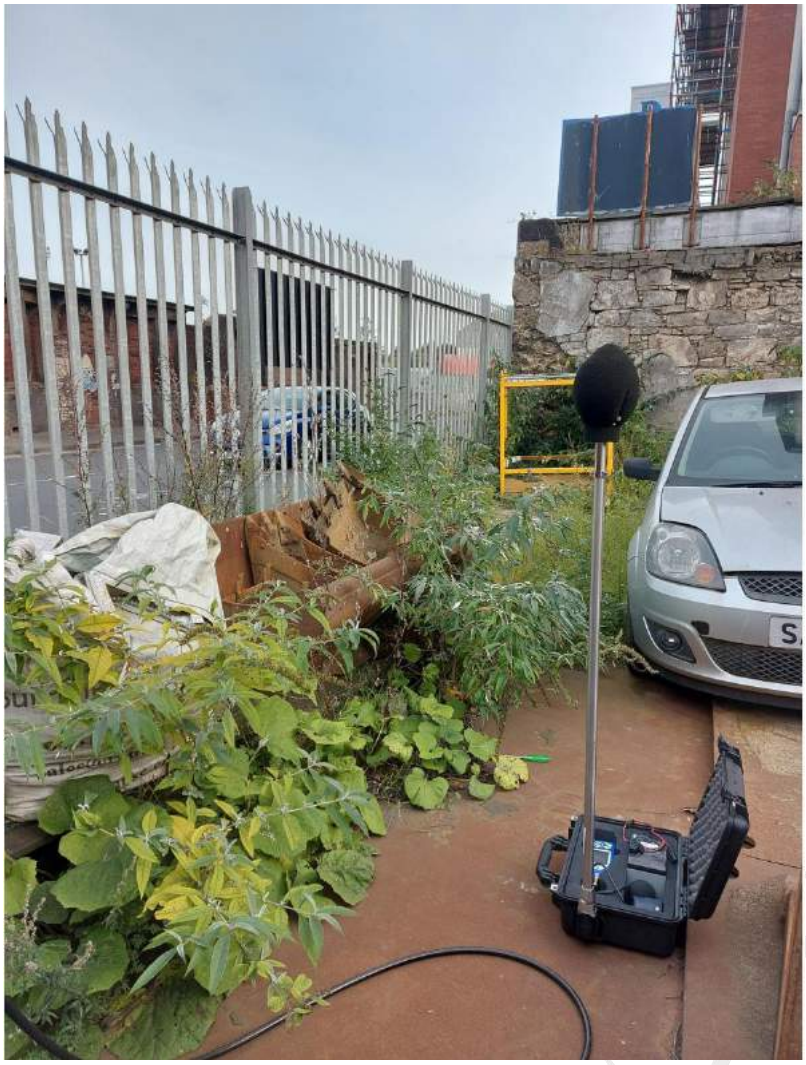
www.itpenergised.com

From: Claire Devlin [redacted]
Sent: Thursday, October 26, 2023 3:38 PM
To: Gregor Massie [redacted]
Subject: RE: 23/02906/PREAPP - 52-66 Salamander Street, Noise Impact Assessment Scope & Methodology

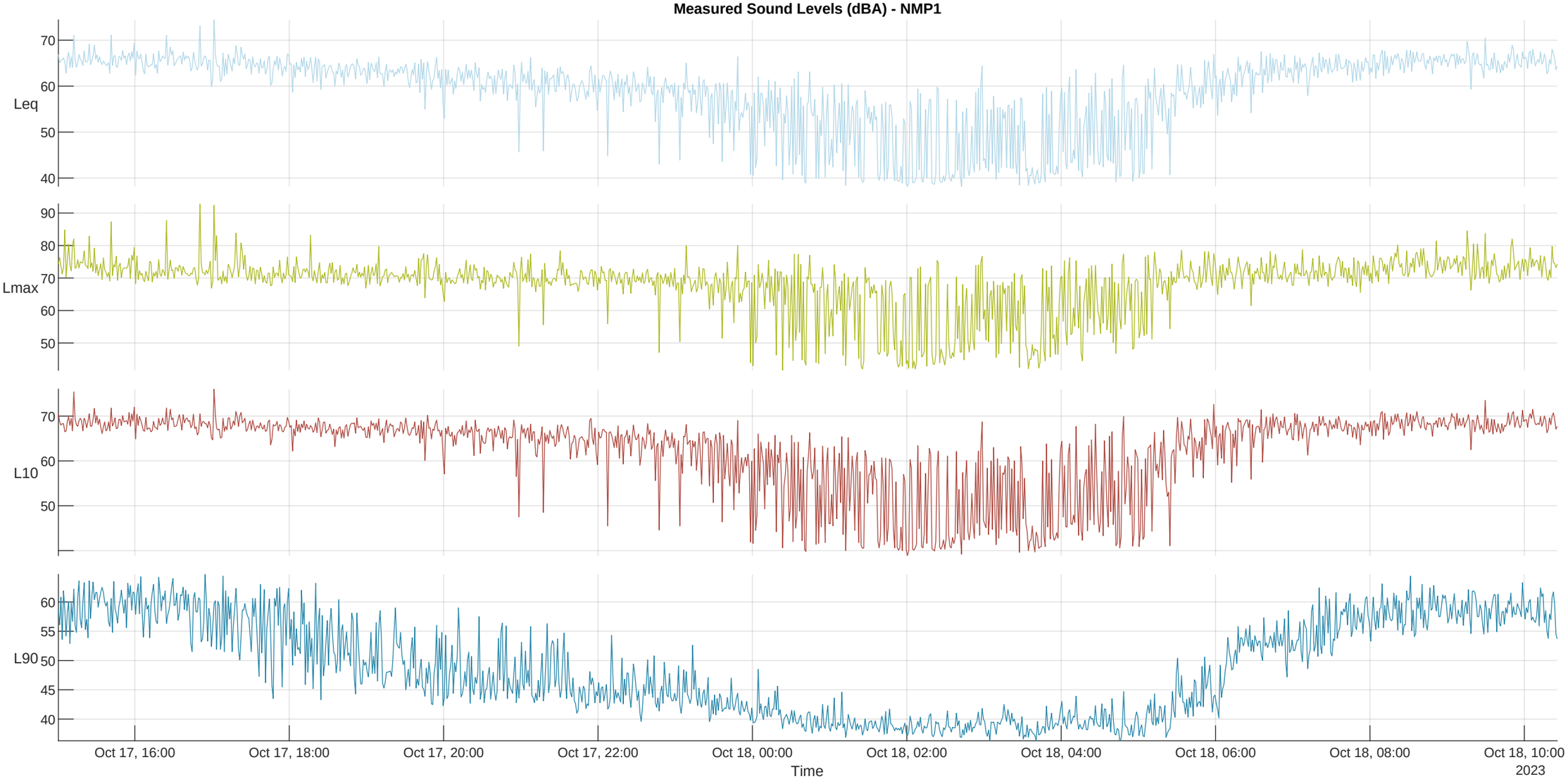
Thanks Gregor.

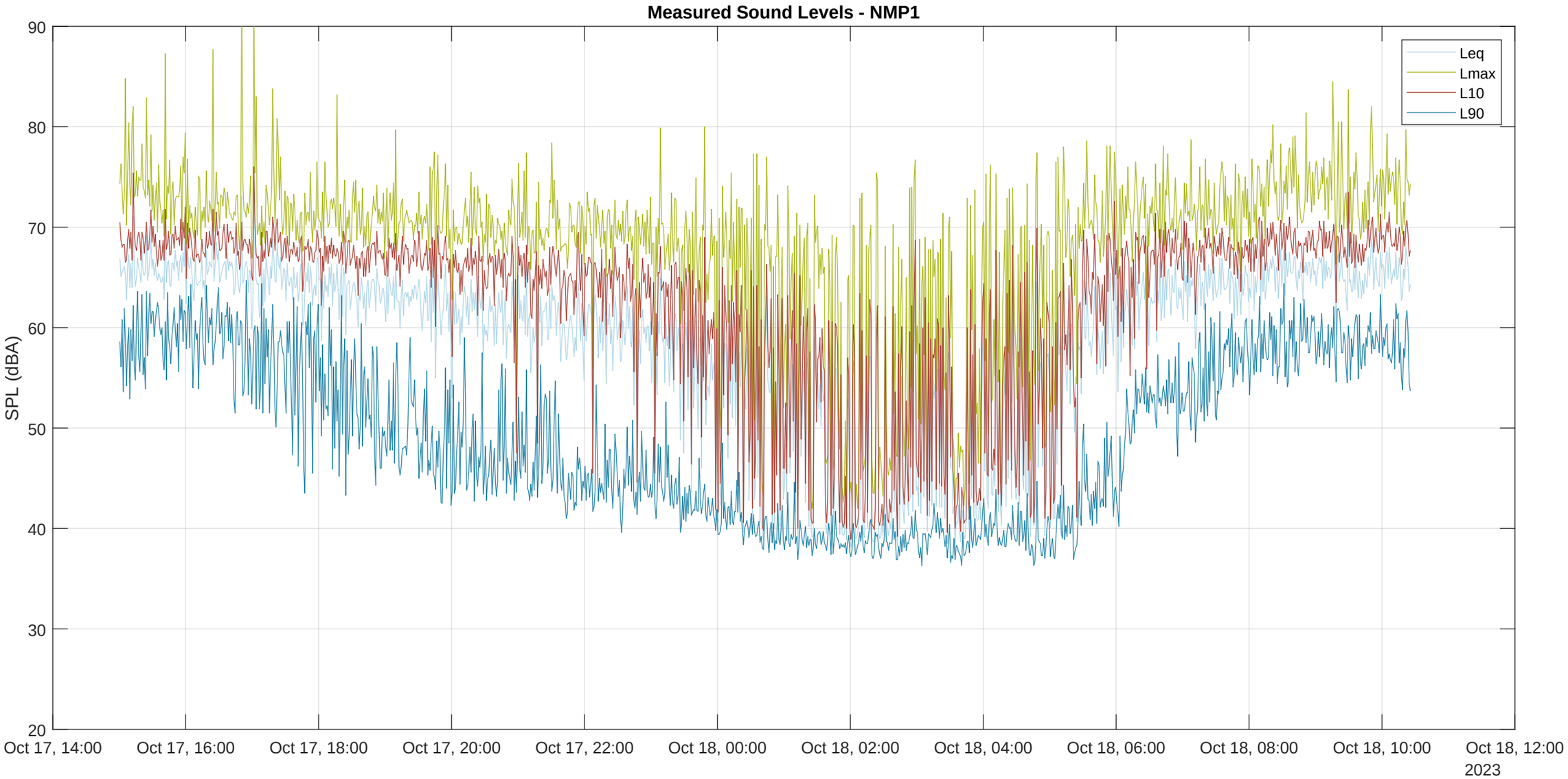
Claire Devlin | Environmental Health Officer | Environmental Protection | Regulatory Services | Directorate of Place | The City of Edinburgh Council | G1, Waverley Court, 4 East Market Street, Edinburgh, EH8 8BG |

Appendix B - Measured Noise Data- Baseline Survey



Measured Sound Levels (dBA) - NMP1




Measured Sound Levels - NMP1
SPL (dBA)
90
80
70
60
50
40
30
20
Leq
Lmax
L10
L90
Oct 17, 14:00
Oct 17, 16:00
Oct 17, 18:00
Oct 17, 20:00
Oct 17, 22:00
Oct 18, 00:00
Oct 18, 02:00
Oct 18, 04:00
Oct 18, 06:00
Oct 18, 08:00
Oct 18, 10:00
Oct 18, 12:00
2023

Appendix C – Source Noise Data used for Industrial / Commercial Noise

On-site Source Characterisation

Source	Engine noise from ship - 12/04/2022	**SLM File**	_0601	**Source #**	

Number of Sources: 1

Description: Engine noise from ship, continous. NMP approx 100m away from source

Operating Time / Pattern: Steady continous operation, measurement lasted 5 minutes

Note: Ship engine noise dominant. No other noise sources audible

Main	12.5 Hz	16 Hz	20 Hz	25 Hz	31.5 Hz	40 Hz	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz	12.5 kHz	16 kHz	20 kHz
57.9	61	60	58.4	59.8	55.3	56.6	66.4	66.9	59.4	54.6	57.6	56.7	45.4	49.9	54.4	53.3	52.2	49.7	50.9	47.6	46.4	42.7	40.9	39.1	37	34.3	31.5	29.2	27.4	24.7	21.9	17.1	10.2

Jet Wash - derived SWL of 83 dB

Address	Start Time	Measurement Time	Leq	LE	Lmax	Lmin	Ly	LN1	LN2	LN3	LN4	LN5	Over	Under
1	18/08/2021 09:40	00d 00:00:10.0	49.9	59.9	53.9	46.8	-.-	53.8	52.3	49	47.9	46.9	----	-----
2	18/08/2021 09:40	00d 00:00:10.0	52	62	58.3	49.1	-.-	58.3	53.1	51.6	49.9	49.2	----	-----
3	18/08/2021 09:40	00d 00:00:10.0	55.4	65.4	61.5	47	-.-	61.4	59.8	53	48.2	47.2	----	-----
4	18/08/2021 09:40	00d 00:00:09.2	52.2	61.9	63.9	44.8	-.-	61.8	53.3	50.9	48.1	45	----	-----

On-site Source Characterisation

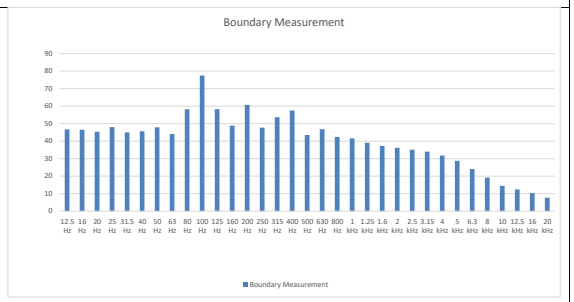
Source	West Georgre Street Substation	**SLM File**	2320	**Source #**	

Number of Sources 1

Description Low hum from substation

Operatin Time / Pattern 10 seconds, constant low hum

Note no other noiuse sources audible



Main	12.5 Hz	16 Hz	20 Hz	25 Hz	31.5 Hz	40 Hz	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz	12.5 kHz	16 kHz	20 kHz
60.5	46.7	46.5	45.4	48	45	45.6	47.9	44.1	58.2	77.5	58.3	48.9	60.7	47.7	53.7	57.5	43.5	46.8	42.4	41.6	39.1	37.3	36.2	35.1	34	31.8	28.8	24.1	19.2	14.5	12.4	10.3	7.7

Heating

Product Information

CAHV-P500YB-HPB

Ecodan Air Source Heat Pump

Making a World of Difference

CAHV Monobloc Heat Pump System

The Ecodan CAHV air source heat pump monobloc system can operate singularly, or form part of a multiple unit system. The CAHV also comes equipped with a wide range of controller features as standard.

A multiple unit system has the ability to cascade available units on and off to meet the load from a building. As an example of this modulation, a 16 unit system allows 0.5kW increments of capacity, from 18kW all the way up to 688kW. This level of modulation is unprecedented within the heating industry and with cascade and rotation built in as standard, the Ecodan CAHV system is perfectly suited to a wide range of commercial applications.

ErP A++

APPROVED PRODUCT

MCS

Certificate Number: MCS HP0002
Product Reference: CAHV-P500YB-HPB

Key Features

- Multiple unit cascade control of up to 688kW capacity
- Split refrigerant circuits within each CAHV provide 50% back up
- Ability to rotate units based on accumulated run hours
- Provides from 25°C up to 70°C water flow temperatures without boost heaters
- Low maintenance, hermetically-sealed monobloc design
- Low on-site refrigerant volume
- HIC (Zubadan) technology delivers 43kW at -3°C with minimal drop off down to -20°C

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Heating

Product Information

CAHV-P500YB-HPB

Ecodan Air Source Heat Pump

Making a World of Difference

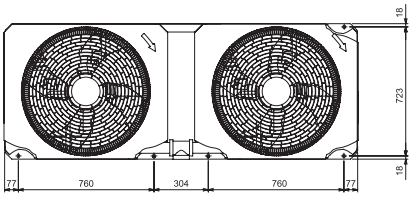
MODEL		CAHV-P500YB-HPB
HEAT PUMP SPACE HEATER - 55°C	ErP Rating	A++
	η_s	125%
	SCOP	3.19
HEAT PUMP SPACE HEATER - 35°C	ErP Rating	A+
	η_s	139%
	SCOP	3.54
HEATING*1 (A-3/W35)	Capacity (kW)	42.6
	Power Input (kW)	15.2
	COP	2.80
OPERATING AMBIENT TEMPERATURE (°C DB)		-20~+40°C
SOUND PRESSURE LEVEL AT 1M (dBA)*2*3		59
LOW NOISE MODE (dBA)*2		Variable
FLOW RATE(l/min)		126
WATER PRESSURE DROP (kPa)		18
DIMENSIONS (mm)	Width	1978
	Depth	759
	Height	1710 (1650 without legs)
WEIGHT (kg)		526
ELECTRICAL SUPPLY		380-415v, 50Hz
PHASE		3
NOMINAL RUNNING CURRENT [MAX] (A)		17.6 [52.9]
FUSE RATING - MCB SIZES (A)*4		63

*1 Under normal heating conditions at outdoor temp: -3°CDB / -4°CWB, outlet water temp 35°C, inlet water temp 30°C
*2 Under normal heating conditions at outdoor temp: 7°CDB / 6°CWB, outlet water temp 35°C, inlet water temp 30°C as tested to BS EN14511
*3 Sound power level of the CAHV-P500YB-HPB is 70.7dBA. Tested to BS EN12102
*4 MCB Sizes BS EN60898-2 & BS EN60947-2

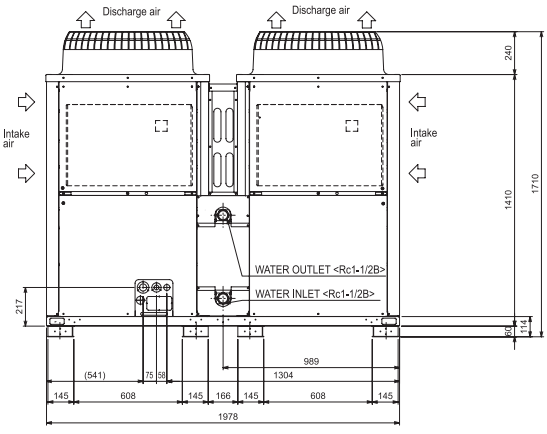
η_s is the seasonal space heating energy efficiency (SSHEE) η_{wh} is the water heating energy efficiency

DIMENSIONS

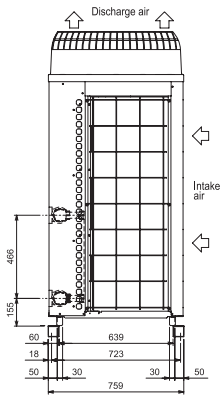
Upper View



Front View



Side View



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Telephone: Dublin (01) 419 8800 Fax: Dublin (01) 419 8890 International code: (003531)

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