



Sanctuary Acoustics

Acoustics Consultancy.

**NOISE ASSESSMENT FOR
JOHN TURNER CONSTRUCTION
GROUP LTD**

**A NOISE ASSESSMENT CONDUCTED
AT NEW
WOMEN'S FIRST TEAM FACILITIES,
CITY FOOTBALL GROUP,
ASHTON NEW ROAD,
MANCHESTER**

DOCUMENT 001

BY

**ANTHONY FROST MSc IEng MIOA
JANUARY 2026**

Sanctuary Acoustics Ltd

t: 0121 371 0652 e: info@sanctuaryacoustics.com w: sanctuaryacoustics.com

EXECUTIVE SUMMARY

Sanctuary Acoustics Ltd was asked by John Turner Construction Group Ltd to assess the existing background noise (L_{A90}) and the ambient noise (L_{Aeq}) environment on two separate visits to land adjacent to Ashton New Road and the Manchester City Academy Football Pitches, Manchester. It had been proposed to construct new indoor facilities on the edge of the existing Manchester City Football Group Campus for the Women's Football First Team. The new facilities building will contain changing rooms, physio/medical, hydrotherapy, kit room etc on the ground floor with further ancillary rooms on the first floor. The eastern/northeastern end of the site utilises the existing brick building which was formerly used as a bank that stood on this end of the site, with the eastern boundary abutting the Ashton Canal. Beyond the canal is the tram line with regular trams between Ashton and Eccles via Media City. The new building also contains on the first floor a kitchen, refectory, WC's plus offices and meeting rooms. Subsequently there is a need for ventilation, heating, extraction etc., throughout the building with fixed mechanical plant mounted on the upper roof and lower roof of which both areas are encircled with metal fencing or screening. At ground level however, it is further fixed plant which abuts the eastern boundary and the Ashton Canal beyond. This fixed plant notably includes air conditioning units and an air source heat pump. With the Ashton Canal running parallel to the eastern/northeastern boundary, beyond it is the tramline and in turn the tramline abuts shops and food takeaways that affront Ashton New Road to the east. Above these ground floor commercial premises are flats at first floor level and it is these flats that have been identified as the nearest residential receptors to the site.

Various planning conditions relating to the development of the site were made with planning approval. It is Conditions 25 & 26 in the Decision Document that relates to noise.

The planning officer has further relayed the following information;

- *Condition 25a (Noise Levels of External Plant Equipment) - The submitted technical documents are inadequate in order to satisfy part a of this condition.*
- *Reference is required to Hepworth Acoustics Noise Impact Assessment, Report No: P23-371-R01v3, dated December 2023, submitted under approval 138987/FO/2024. It should be demonstrated that the proposed plant noise levels are in accordance with the design limits within that report. Due to the above outstanding issues we cannot currently recommend discharge of the condition.*
- *Condition 26 (Air Source Heat Pumps) - Comments as per Condition 25a – Need to update acoustic report*

For the purpose of assessment, reference in this noise report has therefore been made to BS 4142:2014 – *Methods for rating and assessing industrial and commercial sound* with secondary reference to BS 8233:2014 – *Guidance on sound insulation and noise reduction for buildings*.

To summarise:

1. Noise measurements have been undertaken at the Manchester City Women's First Team (MCWFT) facilities on two separate occasions. The first survey

measured background (L_{A90}) and residual (L_{Aeq}) noise levels with the fixed mechanical plant (Air Source Heat Pump, Air Conditioning Units etc.,) inoperable while the second noise survey was conducted to measure the ambient and specific noise levels (L_{Aeq}) in the vicinity and at set distances from the fixed plant with the said fixed plant operating. Reference was also made to the noise levels detailed in the *Hepworth Acoustics* report reference *P23-371-RO1v3*.

2. An assessment of contributing noise sources in the vicinity was made with noise measurements of 15-minute and 5-minutes duration to assess the residual (L_{Aeq}), background (L_{A90}), ambient (L_{Aeq}) and specific (L_{Aeq}) noise levels on and off site. The external noise measurements were conducted in line with *BS 4142:2014 Methods for rating and assessing industrial and commercial sound*. 15-minute measurements were conducted at Location 1 from 13:00 on the 24th January to 12:15 on the 25th January and again from 14:00 on the 30th January to 12:45 on the 31st January. 15-minute measurements at Location 2 were conducted from 13:32 to 13:47 and 13:48 to 14:03 on the 24th January and again from 13:38 to 13:53 on the 31st January. Location 1 was located on the lower roof and Location 2 was located 14 metres from the A/C Units in the centre of the Ashton Canal Lock 8. Locations 3 to 6 were specific noise measurements conducted at 5-minutes and 15-minutes measurement intervals to measure the noise from fixed plant in line with manufactures own literature which states sound pressure levels at set distances. Location 3 is a 5-minutes measurement taken 10 metres to the south east of the Air Source Heat Pump. Location 4 was two 5-minute measurements taken at 3 metres to the west of the Air Conditioning Units. Location 5 is a 5-minutes measurement taken 2 metres to the east of the Air Conditioning Units while Location 6 was taken at 10 metres from the Air Source Heat Pump and the Air Conditioning Units to the east on the canal towpath. The specific noise measurements at Locations 3 to 6 were all taken on the 30th January 2026.
3. The *Hepworth Acoustics* report highlighted road traffic noise on Ashton New Road as the dominant noise source from its measurement location in the car park to the west of the original bank building. Both *Hepworth's* and ourselves have identified the same nearest noise sensitive receptors as first floor dwellings above shops and takeaways to the north east of the site boundary on premises that affront Ashton New Road. Our noise measurements however took place closer to these noise sensitive receptors either side of the MCWFT site's north eastern boundary fence. We have also identified other dominant noise sources in addition to road traffic which is the constant flow of water through the rear of the Ashton Canal Lock 8 and intermittent passing trams running between Ashton and Eccles approximately 18-hours a day between 06:00 and 00:00. The Manchester City Football site with its academy, Joie Stadium and new women's football facility will open daily from 07:00 in the morning but it is expected by the time night-time commences at 23:00, the site will have closed with either no or reduced fixed plant operating.
4. The daytime L_{Aeq} range in the *Hepworth Acoustics* report is 60-66dB(A), our measurements at Location 2 on the Canal Lock (14m) and Location 6 on the Canal Towpath (10m) with noise from road traffic, free flowing canal water, intermittent trams and fixed mechanical plant noise were above 60dB(A) (L_{Aeq} & L_{A90}). Thirdly, Extrium Noise Maps have also been referenced which shows daytime L_{Aeq} at the rear of the dwellings to be 60-65dB(A). The rear façade on the nearest first floor residential receptor is approximately 50 metres from the air conditioning units. With a specific/ambient noise measurement (Location 6) at 10 metres from the A/C Units and air source heat pump and the receptors a further 40 metres away making a total distance of 50 metres, the

predicted fixed plant noise level at the façade of the nearest residential receptor is calculated to be 47.5dB(A). This predicted façade noise level is approximately 15dB(A) below ambient and background noise levels. With the A/C Units emanating noise with a tonal quality, even with a worst case scenario of the tone being *Highly Perceptible*, the +6dB correction factor would still see the rating level of the fixed plant being well below the 5dB below background noise level (L_{A90}) as required under Part (a) of Condition 25. It should be noted however that in the centre of the canal lock (Location 2 14 metres from A/C Units), the fixed plant noise was only *Just Perceptible* which carries just a +2dB correction. As already discussed, over distance with both distance attenuation and sound masking from flowing water, road traffic and passing trams, the fixed plant noise will be inaudible at the nearest residential façade.

5. Based upon the noise levels highlighted in the *Hepworth Acoustics* Report and the noise levels measured across two separate periods Saturday(24th)/Sunday (25th) and Friday(30th)/Saturday(31st) together with references made to Extrium Noise Maps for further confirmation of daytime and night-time L_{Aeq} on Ashton New Road, noise emanating from the fixed mechanical plant, particularly the Air Conditioning Units and the Air Source Heat Pump would not cause adverse noise effects to nearby dwellings and so protection of amenity for occupants will be maintained from plant noise. It should also be noted that neither survey was conducted when the Manchester City Women's Team was playing at Joie Stadium and the men's team who play further along Ashton New Road at the Etihad Stadium were also not playing during either survey. Spectators at both stadiums are audible off-site when cheering during games and so these times were obviously avoided so as not to obtain spurious results.
6. With protection of amenity from fixed plant noise for nearby occupants confirmed, there are no recommendations for mitigation as the fixed plant noise levels are within criteria requirements as stated in the earlier *Hepworth Acoustics* Report.

1. INTRODUCTION

Sanctuary Acoustics Ltd was asked by John Turner Construction Group Ltd to assess the existing background noise and the new ambient noise environment on land adjacent to the Ashton Canal and The Manchester City Football Academy pitches at Ashton New Road, Manchester. This plot of land which has now been acquired by the Manchester City Group and cleared for development once included a bank building near to the eastern site boundary which abuts the Ashton Canal. The former bank building has since been repurposed and a new brick extension built to house new facilities for the Manchester City Women's Football First Team has been constructed.

Planning approval was given with conditions by Manchester City Council as the Local Planning Authority (LPA). Condition 25 relates to noise as detailed below.

“(a) Prior to the first use of the development, details of any externally mounted ancillary plant, equipment and servicing shall be submitted for approval in writing by the City Council, as Local Planning Authority. For the avoidance of doubt, externally mounted plant, equipment and servicing shall be selected and/or acoustically treated in accordance with a scheme designed so as to achieve a rating of 5db (Laeq) below the typical background (La90) level at the nearest noise sensitive location.

(b) Prior to the first use of the development, a verification report will be required to validate that the work undertaken conforms to the recommendations and requirements approved as part (a) of this planning condition. The verification report shall include post completion testing to confirm the noise criteria has been met. In instances of non-conformity, these shall be detailed along with mitigation measures required to ensure compliance with the noise criteria. A verification report and measures shall be agreed until such a time as the development complies with part (a) of this planning condition.

Any mitigation measures shall be implemented in accordance with a timescale to be agreed with the City Council, as Local Planning Authority. Any measures shall thereafter retained and maintained in-situ.”

For the purpose of assessment, reference has therefore been made to *BS 4142:2014 – Methods for rating and assessing industrial and commercial sound* with secondary reference to *BS 8233:2014 – Guidance on sound insulation and noise reduction for buildings*.

An acoustic report had been earlier prepared and submitted as part of the planning application process by *Hepworth Acoustics* in December 2023 and who have given the report the reference number *P23-371-R01v3*.

The site lies on the edge of what is known as the Manchester City Campus next to the football academy with its associated football pitches, large parking areas and the Joie Stadium to the west and south. Across the road junction between Ashton New Road and Alan Turing Way is the larger men's football stadium, known as The Etihad. To the north of Ashton New Road is a large Asda supermarket and also on the opposing side of Ashton New Road is a vacant office block. The tram network also runs parallel to Ashton New Road along the opposing side of the road before cutting across the road to the east of the site boundary. Between the eastern site boundary and the tramlines is the Ashton Canal with Lock 8 of the canal abutting the boundary. The area between the new facilities building and the eastern boundary fence is now home to some fixed mechanical plant which includes air conditioning units and an air source heat pump with other external mechanical plant being

enclosed and located on the upper and lower roofs. On the opposing side of the tramlines is a row of buildings that front onto Ashton New Road. These are commercial premises at ground level which are a mixture of retail and hot food takeaways. Some may have storage areas to upper floors but generally this will be accommodation at first floor level. These dwellings have been identified as the nearest residential receptors.

These residential receptors identified by us as being the nearest to the site were also identified by *Hepworth Acoustics* and highlighted in pale blue in their report summary on page 9 of report *P23-371-R01v3*. The *Hepworth Acoustics* report makes reference to road traffic noise on Ashton New Road as dictating the prevailing noise climate on the site with no mention of any other noise sources.

We have found the primary background noise sources in the vicinity of the eastern end of the site around the boundary with the canal, which is the area the fixed mechanical plant is housed and the closest area of the site to the nearest residential dwellings, is the constant sound of flowing water through Lock 8 of the Ashton Canal, intermittent trams running passed the site to the east between approximately 6am and midnight and road traffic vehicles on Ashton New Road to the north, particularly large vehicles such as buses and HGV's. Other noise sources passing the site along the eastern boundary were pedestrians and cyclists, some with raised voices along the canal tow path, birdsong including waterfowl with Canada geese being the most prevalent and occasional aircraft overhead. During matchdays with both the men's games taking place at the Etihad Stadium and women's games at the Joie Stadium spectators can be heard cheering from the stands during those respective matches.

The single measurement location highlighted on page 9 in the *Hepworth Acoustics* report was further to the west of the building in a more central location on the site to measure primarily road traffic noise from Ashton New Road.

In order to assess the existing noise environment with mechanical plant both in-operative and operative, the following were investigated by us:

- Specific and Residual (L_{Aeq}) as well as Background (L_{A90}) noise levels and the sources of noise on the applicants' site off Ashton New Road.
- The hours of operation are anticipated to be over a constant 24-hour period for some ad-hoc items of plant while others will kick-in to operation once an operational threshold is met.
- The noise levels produced by the 4 x air conditioning units vary with the two units referenced as OU-01 for the gym each has a sound pressure level 63.5dB(A) at 1 metre in standard cooling mode and 53.0dB(A) at 1 metre in low noise mode. The third A/C unit referenced as OU-02 for the office has a sound pressure level 61.0dB(A) at 1 metre in standard cooling mode and 47.0dB(A) at 1 metre in low noise mode and the fourth A/C unit referenced as OU-05 for the refectory has a sound pressure level 61.0dB(A) at 1 metre in standard cooling mode and 47.0dB(A) at 1 metre in low noise mode. The air source heat pump has an average sound pressure level of 52dB(A) at 10 metres.
- The air conditioning unit OU-01 has the model number PURY-P500YNW-A2/TR2/RU2(-BS), OU-02 air conditioning unit has the model number PURY-P300YNW-A2/TR2/RU2(-BS) and the OU-05 air conditioning unit has the model number PURY-P300YNW-A2/TR2/RU2(-BS).
- Other noise sources that are evident in the vicinity which can have a "masking effect" on the fixed plant is water flowing constantly through the canal lock,

intermittent tram passes and road traffic on Ashton New Road. Occasional noise sources such as pedestrians, cyclists and waterfowl on the canal towpath will have less of an impact on the long term noise environment. The nearest residential dwellings to the fixed plant are flats above retail establishments to the east on Ashton New Road which are separated from the fixed plant by an approximate distance of approximately 50 metres with both the canal and tramlines running in between to mask any plant noise plus the ability of the plant noise to be reduced with distance attenuation.

Figure 1 depicts the site location on Ashton New Road with the existing academy stadium (Joie Stadium where the Women's First Team play) and existing facilities including pitches in the blue outline with the newly acquired adjoining site for the Women's First Team Indoor Facilities outlined in red.

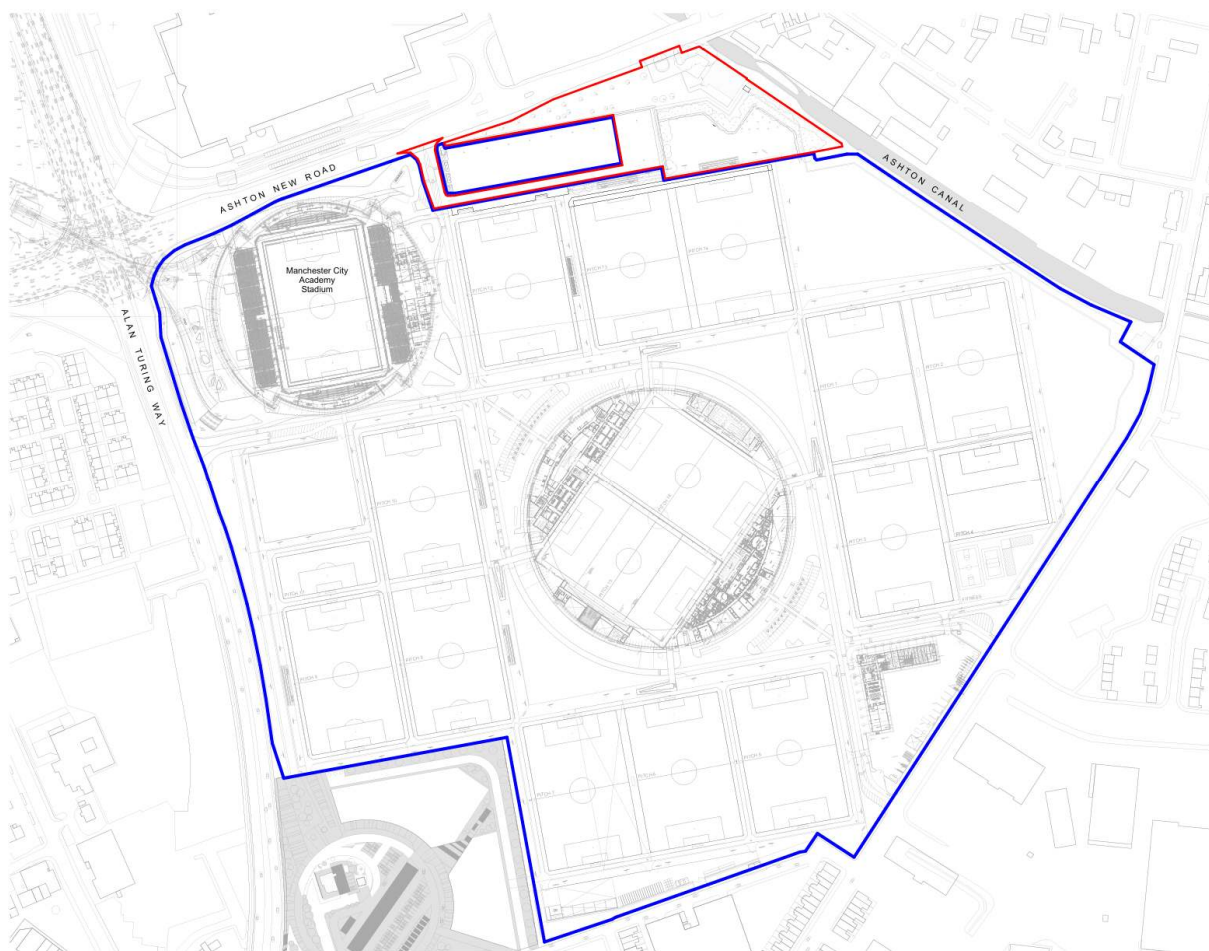


Figure 1: Proposed site location off Ashton New Road.

Figure 2 depicts the existing site block plan in red outline.

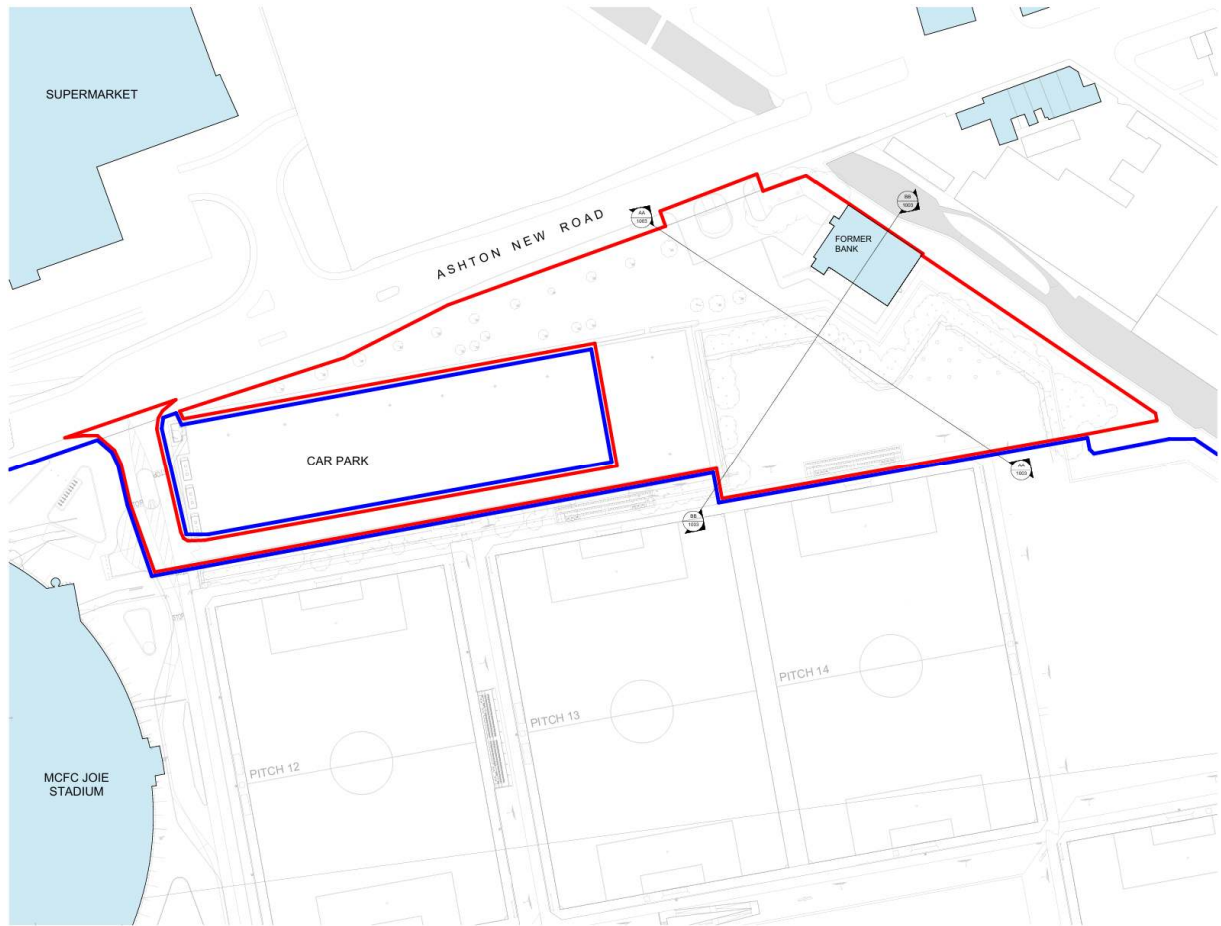


Figure 2: The existing site plan in red outline.

Figure 3 depicts the proposed site plan in red outline.

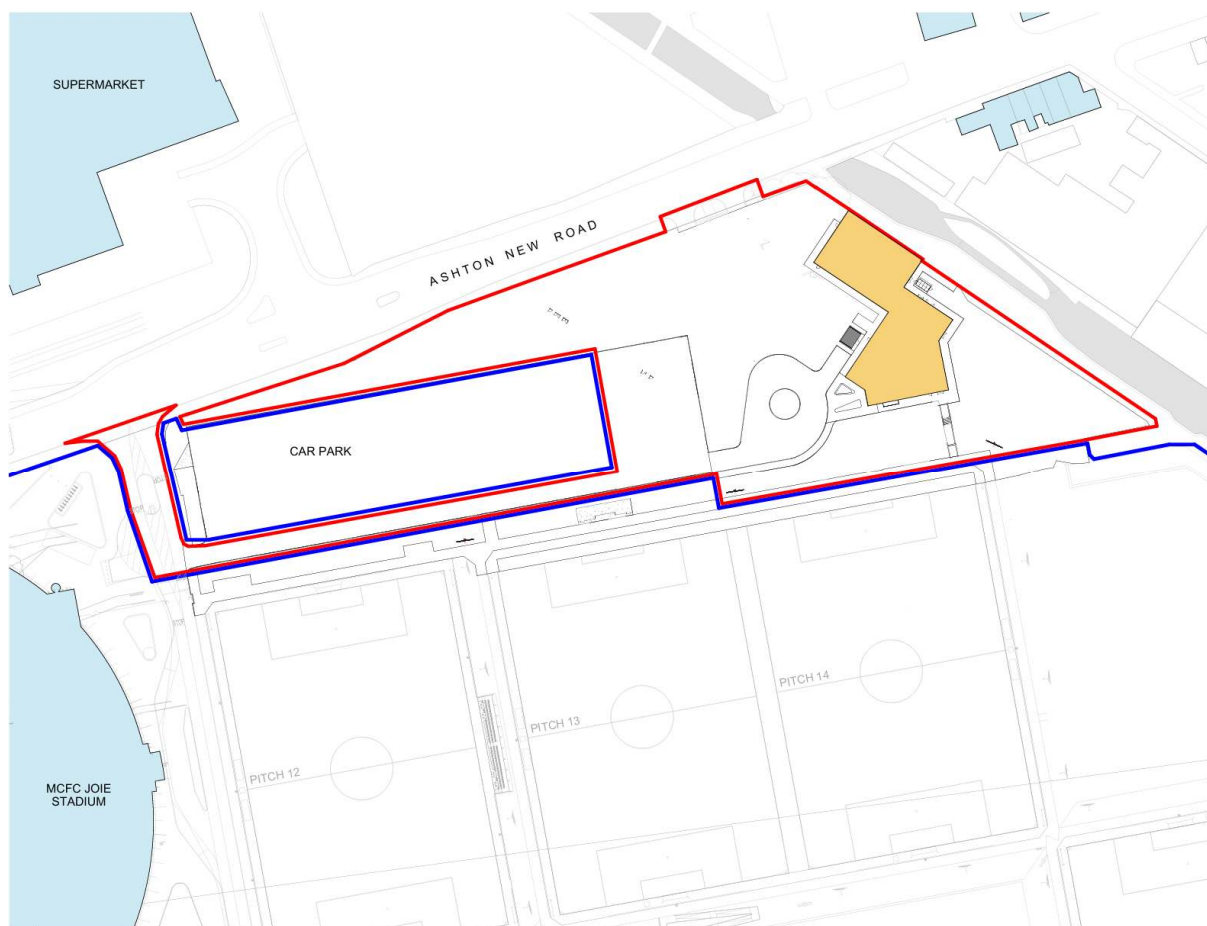


Figure 3: Depicts the proposed site plan in red outline.

Fixed plant is housed in three places, the upper roof and lower roof which are both enclosed with metal walls and doors for access. The third location for fixed plant is at ground level between the building and the sites eastern/northeastern boundary. This ground level location houses the air conditioning units and the air source heat pump.

Figure 4 depicts the upper roof layout.

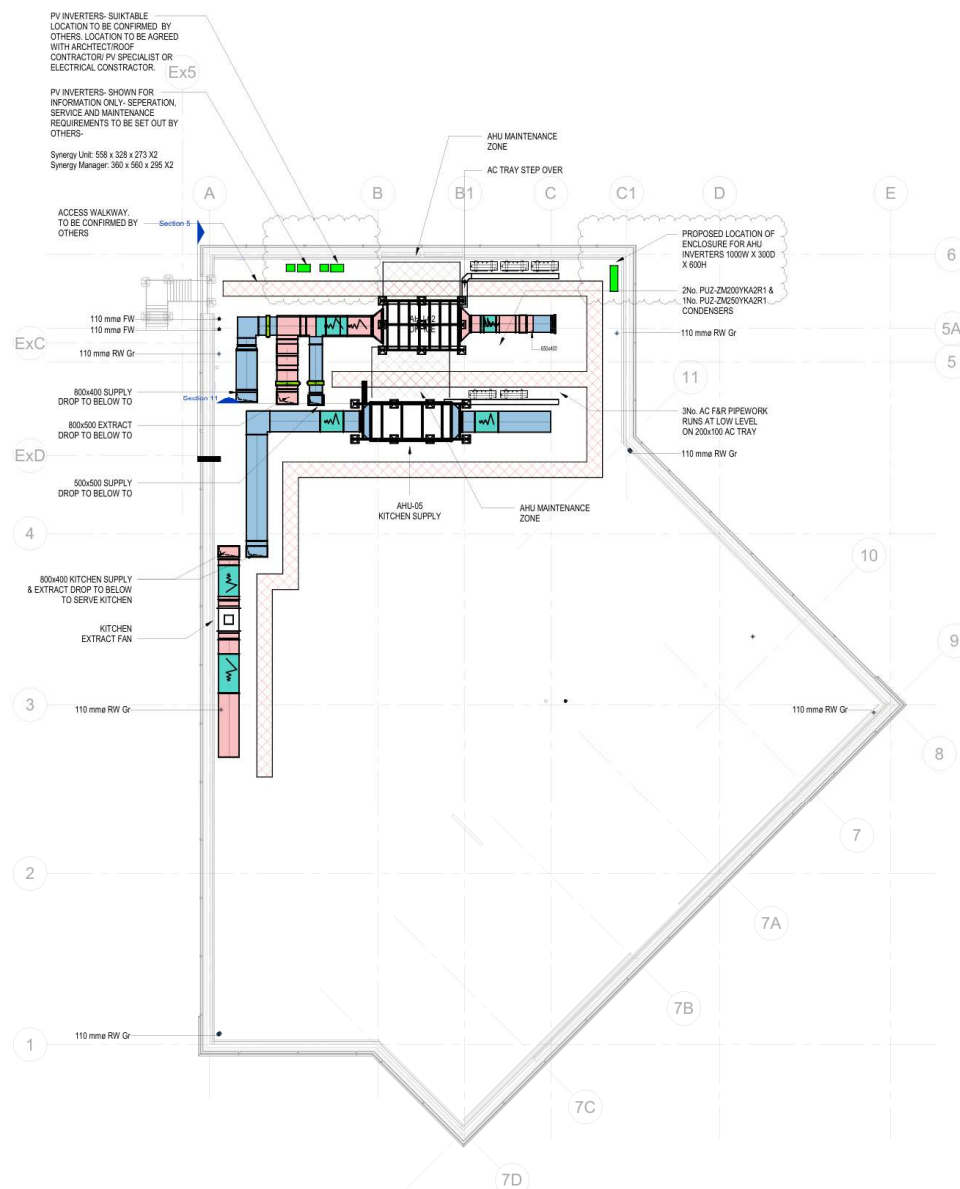


Figure 4: Depicts the upper roof layout.

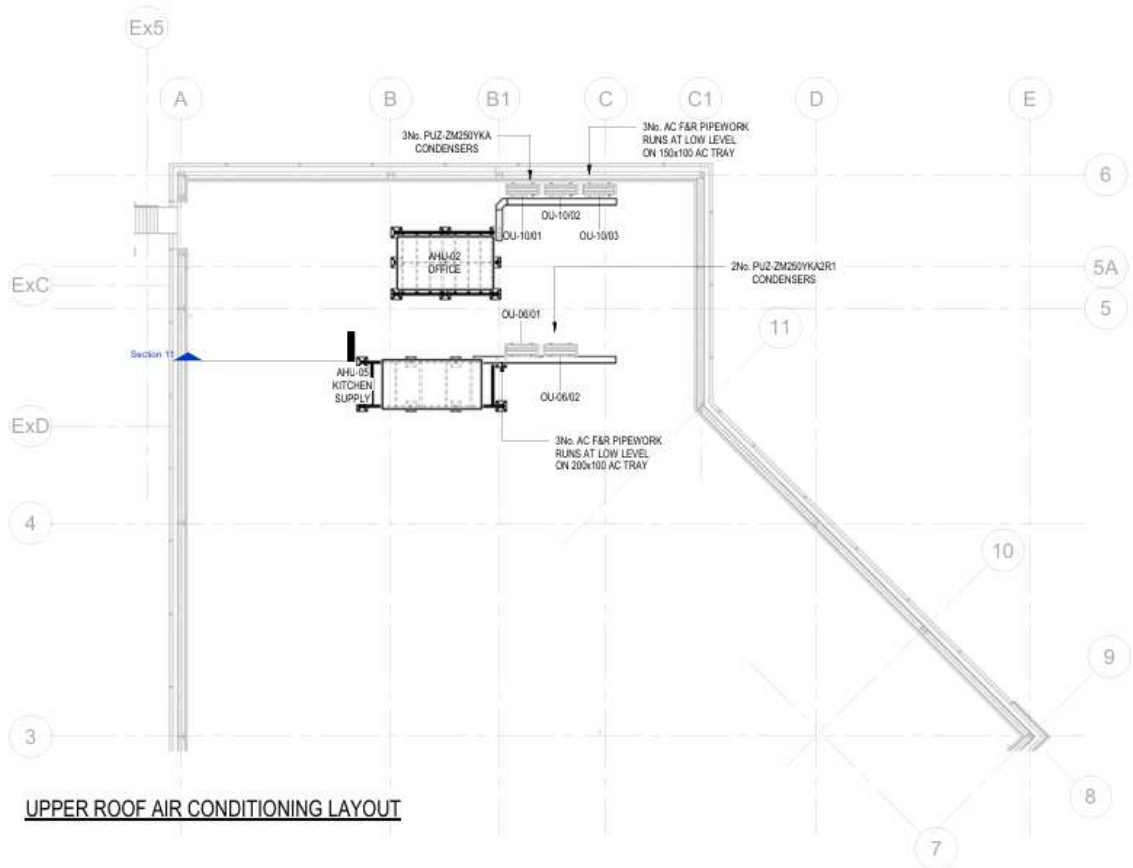
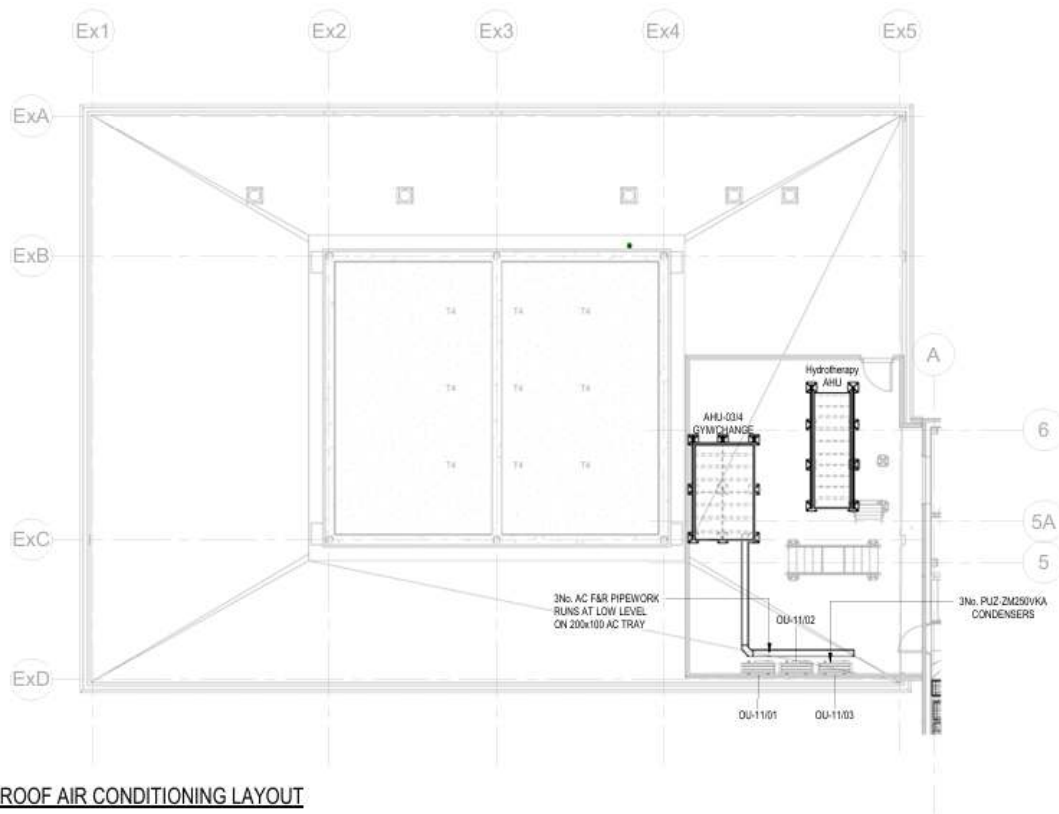


Figure 5: Depicts the upper roof A/C layout.

Figure 6 depicts the lower roof layout.



Noise is covered, although briefly, in the *National Planning Policy Framework (NPPF)* which states that the planning system should contribute to and enhance the natural and local environment.

Planning policies and decisions should;

- aim to avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;
- mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from the new development, including through the use of conditions;
- recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established;
- identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.

The *Department for the Environment, Food and Rural Affairs (Defra)* have issued an explanatory note to the *Noise Policy Statement for England (NPSE)* which states that the long term vision of Government noise policy is to “*promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development.*”

The *NPPF* guidance however gives no objective, tangible standards or criteria to inform planning decisions in respect to noise. The framework does quote existing guidance to make reference to including *WHO* guidelines and *BS 8233*. *BS 8233* currently in its fifth imprint; *BS 8233:2014 Guidance on Sound Insulation and Noise Reduction for Buildings* was issued in 2014.

Applicable guidance divides the 24 hour period into daytime and night-time segments with the daytime period from 07:00 to 23:00 hours and night-time from 23:00 to 07:00.

The noise survey to assess existing external residual (L_{Aeq}) and background (L_{A90}) noise levels with all fixed plant *inoperative* was conducted over a 24-hour period from the 24th January to 25th January 2026. These measurements were conducted while the external site was quiet with no external works in process or any other survey work taking place at the same time. As such only internal works were taking place during the survey, but the area of the fixed plant is impacted by noise from external sources beyond the site boundaries, which as stated above is primarily flowing canal water, tram passes and road traffic. Subsequently due to the ad-hoc nature of noise generation in the vicinity of the site and the operation of the fixed plant, the noise survey(s) were conducted over the 24-hours at Location 1 with other spot measurements of plant noise taken at 5-minute and 15-minute intervals. Location 1 was setup on the lower roof, Location 2 in the centre of the canal lock at 14m from the A/C Units, with the remaining Locations 3-6 being at various distances and measurement intervals from items of fixed plant.

It should be noted that Locations 1 & 2 were used for both the background (L_{A90}) & residual noise survey (L_{Aeq}) measured across 24th-25th January and the ambient (L_{Aeq}) & specific (L_{Aeq}) noise survey measured across 30th-31st January. The specific noise measurements taken at Locations 3 to 6 were taken on 30th January.

2. MEASUREMENTS AND OBSERVATIONS

Six measurement locations were used over the course of two 24-hour periods. The first survey was to measure the background noise (L_{A90}) and residual noise level (L_{Aeq}) on and off site. For the first survey only two measurement locations were used, Location 1 & Location 2. The second survey was to measure the ambient (L_{Aeq}) and specific (L_{Aeq}) noise levels which used six measurement locations, the same Locations 1 & 2 as used in the first survey plus a further 4 x measurement locations to measure specific noise sources at various distances from fixed plant as specified in manufacturers literature.

Location 1 which was in a secure location on the lower roof had a sound level meter left to log noise at 15-minute intervals with the measurement period being over a 24-hour period from the Saturday 24th to Sunday 25th January for background & residual noise measurements and over a similar 24-hour period from Friday 30th to Saturday 31st January.

Location 2 which was to the northeast of the site boundary 14 metres from the air conditioning units and was manned over a 15-minute measurement period with two measurements taken on Saturday 24th for background and residual noise and one measurement taken on Saturday 31st January for ambient noise.

Location 3 was a specific noise measurement of the air source heat pump at 10 metres to the southeast of the plant with a 5-minute measurement on the 30th January.

Location 4 was a specific noise measurement of the air conditioning units at 3 metres to the west of the plant (into the site) with 2 x 5-minute measurements on the 30th January.

Location 5 was a specific noise measurement of the air conditioning units at 2 metres to the east of the plant (at the site boundary) with a 5-minute measurement on the 30th January.

Location 6 was a specific noise measurement of the combined effect of all the plant, air source heat pump and air condition units etc., at 10 metres to the east of the plant with 2 x 5-minute measurements on the 30th January.

In the case of the 24-hour measurements, the daytime residual noise (L_{Aeq}) and background noise (L_{A90}) measurements were later averaged to provide the extrapolated 1-hour results at Location 1 for daytime measurements between 07:00 and 23:00. Overall, the measurement intervals were taken inline with *BS 4142* which states measurement intervals during the daytime should be for a duration of 1-hour between 07:00 and 23:00 and at 15-minute intervals between 23:00 and 07:00. These measurement durations also comply with *BS 8233*. To avoid stopping and starting the measurements as well as giving an indication of the occurrence of significant maximum noise events the sound level meter was set up to monitor at 15-minutes intervals during the noise assessment at this location. 15-minute and 5-minute measurement durations were chosen at other locations to enable maximum noise events to be identified and appropriated to specific noise sources such as passing trams or raised voices etc. Due to other noise sources impacting onto the locality, the shorter timeframe also best measures the specific noise levels from fixed plant and allows any other external sources such as passing trams or raised voices to be paused during the measurement to reduce spurious noise impact.

Sanctuary Acoustics Ltd

The noise measurements were undertaken at Locations 1 and 4 using a Norsonic 131 Sound Level Meter (Serial Number 1313597) which was calibrated before and after the noise measurements were taken using a CEL 284/2 Acoustic Calibrator (Serial Number 4-02123778). These items of equipment have traceable calibration certificates with these two items of equipment being designated as Type 1 instruments in line with IEC 61672 & 61260 and IEC 60942 respectively.

The additional noise measurements undertaken at Locations 2, 3, 5 & 6 were done using a Norsonic 131 Sound Level Meter (Serial Number 1314009) which was calibrated before and after the noise measurements were taken using a CEL 284/2 Acoustic Calibrator (Serial Number 4-02123778). These items of equipment have traceable calibration certificates with these two items of equipment being designated as Type 1 instruments in line with IEC 61672 & 61260 and IEC 60942 respectively.

The Sound Level Meters were mounted on tri-pods 1.35m above ground level and at least 3.5m from any facades to avoid specula reflections. *BS 4142: 2014 Method for rating industrial and commercial sound* states caution should be exercised when wind speeds are greater than 5m/s. The wind speeds in the vicinity were checked using a Proster Digital Anemometer model MS6252A.

At the commencement of the background & residual noise survey on Saturday 24th January it was 8°C with a partly cloudy sky. The sky became overcast during the night with lows of 6°C remaining overcast into the morning of Sunday 25th with some breaks in the cloud and the temperature rising to 8°C. There were occasional wind gusts on the 24th January registering on the Anemometer up to 4m/s at the start of the noise survey with occasional gusts up to 1.9m/s at the end of the survey on Sunday 25th January.

At the commencement of the specific & ambient noise survey on Friday 30th January it was 6°C rising to 8°C with an overcast sky. The sky remained overcast during the night with lows of 7°C remaining overcast into the morning of Saturday 25th with some breaks in the cloud and the temperature rising from a low of 6°C to 9°C at the end of the survey. There were occasional wind gusts on the 30th January registering on the Anemometer up to 1.5m/s at the start of the noise survey with occasional gusts up to 1.2m/s at the end of the survey on Saturday 31st January.

The results of the noise measurements and their acoustic parameters are detailed in the following tables starting with the background & residual noise measurements taken across the 24th to 25th January followed by the ambient & specific noise measurements taken across the 30th to 31st January. A glossary of the acoustic parameters/terms used can be found in Appendix A.

BS 4142:2014 has the daytime measurement duration set for a period of 1-hour with the night-time measurement set for a period of 15-minutes. Measurements were taken at 15-minutes at Location 1 with the daytime L_{Aeq} and L_{A90} logarithmically averaged to obtain the 1-hour measurement. *BS 4142* states that daytime is from 07:00 to 23:00. The background noise levels, L_{A90} is the noise level obtained for 90% of the measurement duration and the residual noise level, L_{Aeq} which is the noise level with the offending noise source sufficiently suppressed that it does not have an impact on the ambient noise levels (fixed plant not in operation). The ambient noise level, also L_{Aeq} which is the all encompassing noise will include noise from operational fixed plant (A/C Units, air source heat pump etc.).

During the measurement process, the contributing noise sources in the vicinity as stated here were noted and at what time they occurred were applicable during the measurement period these are detailed in the following tables.

For each of the measurements the observations and results are detailed in tabular form including descriptions of the location, weather conditions and pictorial location.

BS 7445-1:2003 Description and measurement of environmental noise – Part 1:

Guide to quantities and procedures states in section;

5.2.2 Outdoor measurements;

When it is desired to minimise the influence of reflections then measurements should, whenever possible, be carried out at least 3.5m from any reflecting structure other than the ground. When not otherwise specified, the preferred measurement height is 1.2m to 1.5m above the ground. Other measurement heights may be specified in pertinent standards.

Figure 8 depicts the measurement locations on and off site.

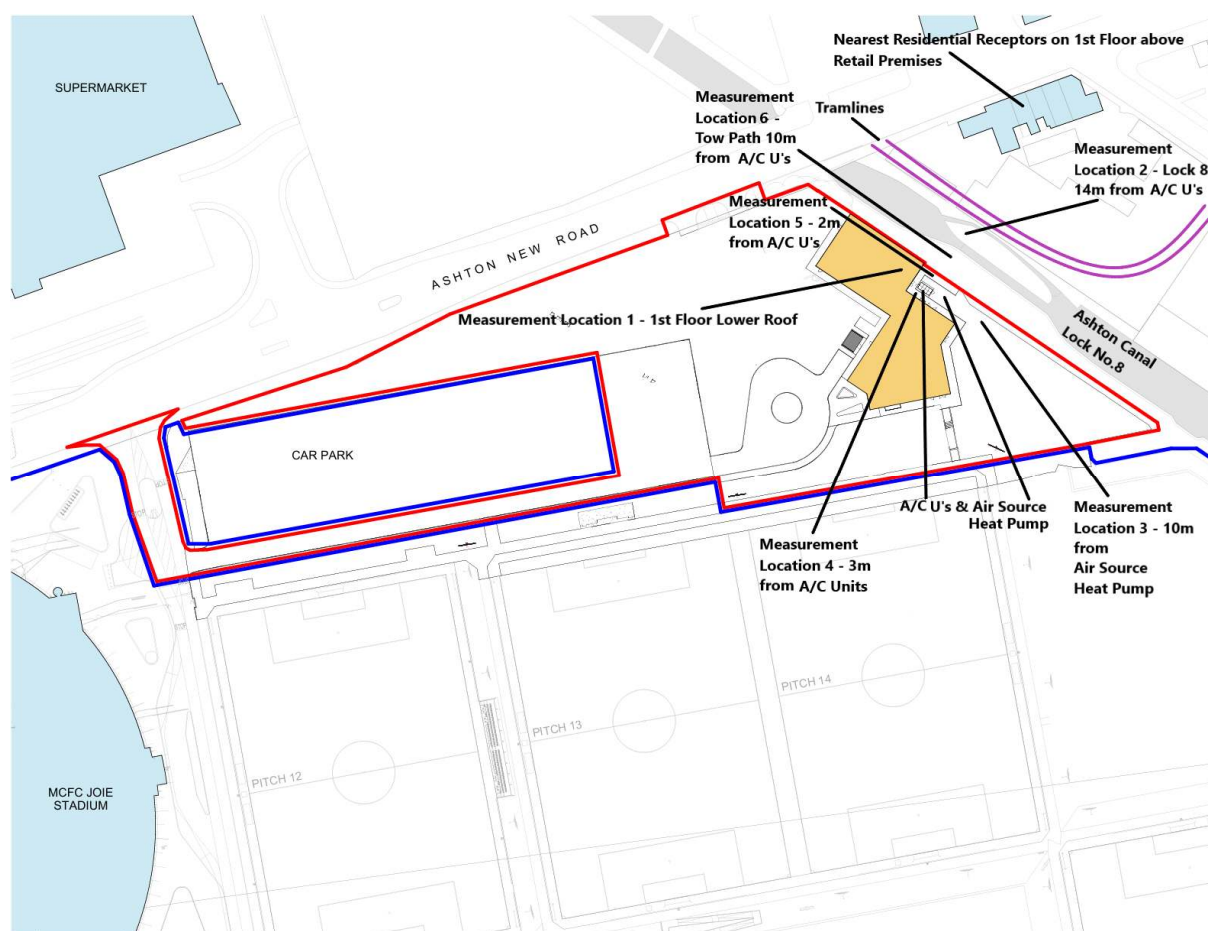


Figure 8: Measurement locations on and off site.

Figure 9 depicts the measurement location 1 on the lower roof.

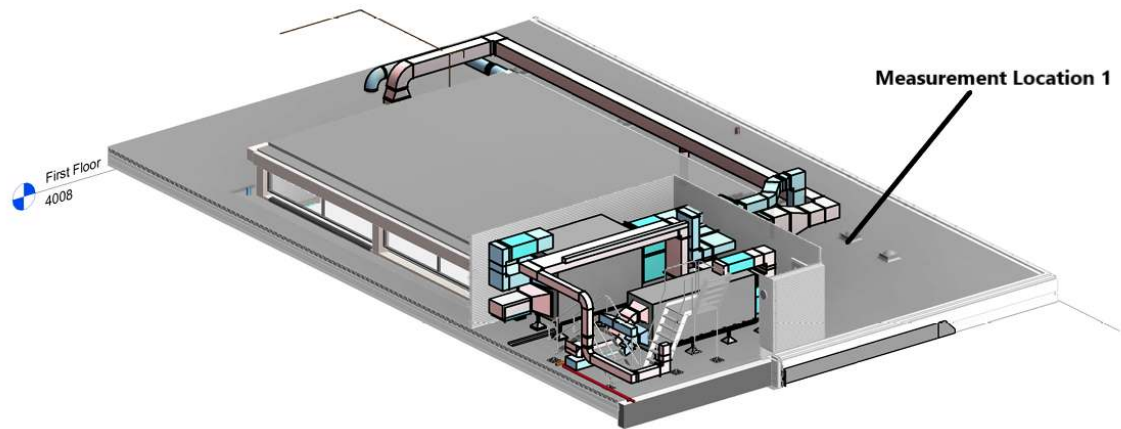


Figure 9: Measurement Location 1 on the lower roof.

Figure 10 depicts Location 1 on the lower roof.



Figure 10: Measurement Location 1 on the lower roof viewed south and eastwards.

Figure 11 depicts the view from Location 1 with Ashton New Road to the north with the first floor dwellings above ground floor retail establishments to the east beyond the trees.



Figure 11: Measurement location 1 viewed north and east.

Figure 12 depicts the view to the east with the canal abutting the boundary and the tramline beyond which both lie between the site and the nearest residential dwellings.



Figure 12: Canal and tramline to the east with a tram heading north and west to Eccles.

Figure 13 depicts the view to the north and Ashton New Road with vacant office buildings beyond.



Figure 13: The view north.

The background and residual noise results with no fixed plant noise at Location 1 from 13:00 to 23:00 on the 24th January are detailed in table 1.

Sanctuary Acoustics Ltd

Time Period 24/01/2026	Measurement Parameters				
	L _{Aeq}	L _{Amin}	L _{Amax}	L _{A10}	L _{A90}
13:00 to 13:15	57.6dB(A)	52.9dB(A)	70.9dB(A)	60.0dB(A)	54.5dB(A)
13:15 to 13:30	56.8dB(A)	53.1dB(A)	70.8dB(A)	58.3dB(A)	54.7dB(A)
13:30 to 13:45	56.1dB(A)	52.8dB(A)	63.3dB(A)	57.4dB(A)	54.6dB(A)
13:45 to 14:00	56.0dB(A)	52.0dB(A)	63.1dB(A)	57.3dB(A)	54.3dB(A)
14:00 to 14:15	58.2dB(A)	53.0dB(A)	81.9dB(A)	59.4dB(A)	54.5dB(A)
14:15 to 14:30	56.5dB(A)	53.3dB(A)	73.6dB(A)	58.0dB(A)	54.6dB(A)
14:30 to 14:45	56.7dB(A)	52.8dB(A)	76.7dB(A)	57.8dB(A)	54.5dB(A)
14:45 to 15:00	56.6dB(A)	53.0dB(A)	72.5dB(A)	57.9dB(A)	54.4dB(A)
15:00 to 15:15	56.8dB(A)	52.5dB(A)	77.6dB(A)	57.4dB(A)	54.5dB(A)
15:15 to 15:30	57.4dB(A)	52.8dB(A)	74.8dB(A)	59.3dB(A)	54.7dB(A)
15:30 to 15:45	57.8dB(A)	53.2dB(A)	76.1dB(A)	59.6dB(A)	54.7dB(A)
15:45 to 16:00	61.6dB(A)	52.7dB(A)	82.6dB(A)	58.2dB(A)	54.5dB(A)
16:00 to 16:15	57.8dB(A)	52.9dB(A)	75.6dB(A)	59.8dB(A)	54.3dB(A)
16:15 to 16:30	56.6dB(A)	52.7dB(A)	68.2dB(A)	58.4dB(A)	54.5dB(A)
16:30 to 16:45	57.5dB(A)	52.7dB(A)	78.4dB(A)	57.9dB(A)	54.1dB(A)
16:45 to 17:00	56.1dB(A)	53.1dB(A)	69.6dB(A)	57.4dB(A)	54.3dB(A)
17:00 to 17:15	56.2dB(A)	52.9dB(A)	72.9dB(A)	56.9dB(A)	54.4dB(A)
17:15 to 17:30	57.7dB(A)	52.4dB(A)	80.6dB(A)	58.1dB(A)	54.0dB(A)
17:30 to 17:45	56.7dB(A)	53.0dB(A)	70.9dB(A)	58.4dB(A)	54.3dB(A)
17:45 to 18:00	57.2dB(A)	53.3dB(A)	74.8dB(A)	58.6dB(A)	54.7dB(A)
18:00 to 18:15	57.0dB(A)	52.4dB(A)	72.1dB(A)	59.1dB(A)	54.1dB(A)
18:15 to 18:30	55.7dB(A)	52.8dB(A)	63.8dB(A)	57.2dB(A)	53.9dB(A)
18:30 to 18:45	56.2dB(A)	52.7dB(A)	64.8dB(A)	57.6dB(A)	54.2dB(A)
18:45 to 19:00	55.8dB(A)	52.2dB(A)	67.3dB(A)	57.2dB(A)	53.7dB(A)
19:00 to 19:15	56.8dB(A)	52.5dB(A)	74.9dB(A)	57.8dB(A)	53.9dB(A)
19:15 to 19:30	57.6dB(A)	52.8dB(A)	77.8dB(A)	58.3dB(A)	54.5dB(A)
19:30 to 19:45	57.5dB(A)	52.8dB(A)	76.3dB(A)	59.8dB(A)	54.3dB(A)
19:45 to 20:00	57.1dB(A)	52.4dB(A)	79.2dB(A)	58.7dB(A)	54.1dB(A)
20:00 to 20:15	56.9dB(A)	52.9dB(A)	73.6dB(A)	58.2dB(A)	54.3dB(A)
20:15 to 20:30	58.3dB(A)	53.0dB(A)	77.6dB(A)	60.6dB(A)	54.6dB(A)
20:30 to 20:45	59.3dB(A)	53.4dB(A)	78.0dB(A)	60.5dB(A)	55.0dB(A)
20:45 to 21:00	58.2dB(A)	53.2dB(A)	73.9dB(A)	59.6dB(A)	55.1dB(A)
21:00 to 21:15	58.8dB(A)	52.9dB(A)	80.2dB(A)	60.3dB(A)	55.0dB(A)
21:15 to 21:30	60.9dB(A)	54.2dB(A)	75.0dB(A)	62.9dB(A)	57.3dB(A)
21:30 to 21:45	60.2dB(A)	52.5dB(A)	79.3dB(A)	61.8dB(A)	56.8dB(A)
21:45 to 22:00	60.8dB(A)	54.1dB(A)	78.6dB(A)	62.3dB(A)	58.3dB(A)
22:00 to 22:15	60.2dB(A)	53.5dB(A)	75.0dB(A)	62.1dB(A)	56.6dB(A)
22:15 to 22:30	60.2dB(A)	52.8dB(A)	76.1dB(A)	62.0dB(A)	55.6dB(A)
22:30 to 22:45	57.6dB(A)	52.3dB(A)	75.8dB(A)	58.8dB(A)	54.7dB(A)
22:45 to 23:00	57.7dB(A)	51.9dB(A)	66.1dB(A)	59.7dB(A)	54.7dB(A)

Table 1: Noise results for 13:00 to 23:00 at Location 1 on the 24th January 2026.

The background and residual noise results with no fixed plant noise at Location 1 from 23:00 to 00:00 on the 24th January are detailed in table 2.

Sanctuary Acoustics Ltd

Time Period 24/01/2026	Measurement Parameters				
	L _{Aeq}	L _{Amin}	L _{Amax}	L _{A10}	L _{A90}
23:00 to 23:15	56.8dB(A)	51.6dB(A)	73.2dB(A)	58.9dB(A)	53.3dB(A)
23:15 to 23:30	55.9dB(A)	51.8dB(A)	74.4dB(A)	57.7dB(A)	53.3dB(A)
23:30 to 23:45	55.7dB(A)	51.3dB(A)	68.8dB(A)	57.7dB(A)	53.0dB(A)
23:45 to 00:00	55.6dB(A)	51.3dB(A)	67.2dB(A)	57.7dB(A)	52.8dB(A)

Table 2: Noise results for 23:00 to 00:00 at Location 1 on the 24th January 2026.

The background and residual noise results with no fixed plant noise at Location 1 from 00:00 to 07:00 on the 25th January are detailed in table 3.

Time Period 25/01/2026	Measurement Parameters				
	L _{Aeq}	L _{Amin}	L _{Amax}	L _{A10}	L _{A90}
00:00 to 00:15	55.4dB(A)	51.3dB(A)	70.6dB(A)	57.4dB(A)	52.7dB(A)
00:15 to 00:30	55.8dB(A)	51.3dB(A)	71.9dB(A)	58.1dB(A)	52.9dB(A)
00:30 to 00:45	54.4dB(A)	51.1dB(A)	65.1dB(A)	56.1dB(A)	52.4dB(A)
00:45 to 01:00	54.9dB(A)	51.0dB(A)	68.4dB(A)	57.0dB(A)	52.3dB(A)
01:00 to 01:15	54.1dB(A)	50.7dB(A)	71.0dB(A)	55.8dB(A)	51.8dB(A)
01:15 to 01:30	53.1dB(A)	50.2dB(A)	63.0dB(A)	54.9dB(A)	51.3dB(A)
01:30 to 01:45	53.6dB(A)	50.3dB(A)	64.5dB(A)	55.9dB(A)	51.2dB(A)
01:45 to 02:00	52.9dB(A)	50.4dB(A)	63.7dB(A)	54.4dB(A)	51.4dB(A)
02:00 to 02:15	52.4dB(A)	50.4dB(A)	59.5dB(A)	53.7dB(A)	51.2dB(A)
02:15 to 02:30	53.0dB(A)	50.3dB(A)	65.4dB(A)	54.3dB(A)	51.2dB(A)
02:30 to 02:45	52.8dB(A)	50.2dB(A)	67.7dB(A)	53.9dB(A)	51.2dB(A)
02:45 to 03:00	52.9dB(A)	50.3dB(A)	64.7dB(A)	54.3dB(A)	51.4dB(A)
03:00 to 03:15	52.5dB(A)	50.1dB(A)	65.8dB(A)	53.8dB(A)	51.0dB(A)
03:15 to 03:30	53.0dB(A)	50.7dB(A)	63.1dB(A)	54.3dB(A)	51.7dB(A)
03:30 to 03:45	53.5dB(A)	51.0dB(A)	61.6dB(A)	55.3dB(A)	51.8dB(A)
03:45 to 04:00	53.9dB(A)	50.6dB(A)	61.4dB(A)	55.9dB(A)	51.7dB(A)
04:00 to 04:15	53.5dB(A)	50.2dB(A)	60.3dB(A)	55.8dB(A)	51.4dB(A)
04:15 to 04:30	52.8dB(A)	50.0dB(A)	60.2dB(A)	55.0dB(A)	50.9dB(A)
04:30 to 04:45	52.7dB(A)	50.1dB(A)	59.9dB(A)	54.7dB(A)	50.9dB(A)
04:45 to 05:00	52.8dB(A)	50.1dB(A)	61.1dB(A)	54.6dB(A)	51.1dB(A)
05:00 to 05:15	53.1dB(A)	50.3dB(A)	62.6dB(A)	55.3dB(A)	51.1dB(A)
05:15 to 05:30	53.4dB(A)	50.4dB(A)	59.5dB(A)	55.6dB(A)	51.4dB(A)
05:30 to 05:45	53.6dB(A)	50.5dB(A)	62.5dB(A)	55.5dB(A)	51.7dB(A)
05:45 to 06:00	53.6dB(A)	50.3dB(A)	61.3dB(A)	55.9dB(A)	51.4dB(A)
06:00 to 06:15	53.5dB(A)	50.4dB(A)	62.9dB(A)	55.4dB(A)	51.3dB(A)
06:15 to 06:30	53.5dB(A)	50.3dB(A)	64.0dB(A)	55.6dB(A)	51.4dB(A)
06:30 to 06:45	53.6dB(A)	50.5dB(A)	60.7dB(A)	55.5dB(A)	51.7dB(A)
06:45 to 07:00	54.5dB(A)	50.7dB(A)	63.4dB(A)	56.7dB(A)	51.9dB(A)

Table 3: Noise results for 00:00 to 07:00 at Location 1 on the 25th January 2026.

The background and residual noise results with no fixed plant noise at Location 1 from 07:00 to 12:15 on the 25th January are detailed in table 4.

Sanctuary Acoustics Ltd

Time Period 25/01/2026	Measurement Parameters				
	L _{Aeq}	L _{Amin}	L _{Amax}	L _{A10}	L _{A90}
07:00 to 07:15	54.2dB(A)	50.4dB(A)	65.1dB(A)	56.2dB(A)	51.8dB(A)
07:15 to 07:30	54.7dB(A)	50.8dB(A)	64.3dB(A)	57.1dB(A)	52.0dB(A)
07:30 to 07:45	54.6dB(A)	50.6dB(A)	63.6dB(A)	56.7dB(A)	51.9dB(A)
07:45 to 08:00	54.4dB(A)	51.2dB(A)	62.0dB(A)	56.2dB(A)	52.4dB(A)
08:00 to 08:15	55.1dB(A)	50.9dB(A)	68.8dB(A)	57.2dB(A)	52.2dB(A)
08:15 to 08:30	55.3dB(A)	51.0dB(A)	82.4dB(A)	56.9dB(A)	52.2dB(A)
08:30 to 08:45	54.9dB(A)	51.2dB(A)	64.6dB(A)	56.8dB(A)	52.5dB(A)
08:45 to 09:00	55.3dB(A)	51.4dB(A)	68.4dB(A)	56.9dB(A)	53.0dB(A)
09:00 to 09:15	55.0dB(A)	51.2dB(A)	62.5dB(A)	56.8dB(A)	52.8dB(A)
09:15 to 09:30	55.7dB(A)	51.9dB(A)	62.4dB(A)	57.4dB(A)	53.5dB(A)
09:30 to 09:45	55.9dB(A)	51.9dB(A)	64.8dB(A)	57.7dB(A)	53.5dB(A)
09:45 to 10:00	56.3dB(A)	51.7dB(A)	66.1dB(A)	58.3dB(A)	53.6dB(A)
10:00 to 10:15	56.7dB(A)	52.0dB(A)	75.9dB(A)	58.3dB(A)	53.9dB(A)
10:15 to 10:30	59.1dB(A)	52.3dB(A)	78.6dB(A)	58.6dB(A)	54.4dB(A)
10:30 to 10:45	56.6dB(A)	52.7dB(A)	78.7dB(A)	57.7dB(A)	54.2dB(A)
10:45 to 11:00	58.3dB(A)	51.9dB(A)	80.2dB(A)	57.0dB(A)	53.2dB(A)
11:00 to 11:15	55.7dB(A)	52.0dB(A)	67.9dB(A)	57.1dB(A)	53.7dB(A)
11:15 to 11:30	57.2dB(A)	52.5dB(A)	76.8dB(A)	57.7dB(A)	54.2dB(A)
11:30 to 11:45	55.6dB(A)	52.1dB(A)	64.5dB(A)	56.9dB(A)	53.7dB(A)
11:45 to 12:00	55.6dB(A)	52.0dB(A)	65.6dB(A)	56.8dB(A)	53.7dB(A)
12:00 to 12:15	55.7dB(A)	52.3dB(A)	61.3dB(A)	57.1dB(A)	53.9dB(A)

Table 4: Noise results for 07:00 to 12:15 at Location 1 on the 25th January 2026.

Table 5 details the calculated hourly averages for ambient noise level (L_{Aeq}) and background noise level (L_{A90}) from 13:00 and 23:00 at Location 1 on 24th January.

Time Period 24/01/2026	Measurement Parameters	
	L _{Aeq} 1-hour	L _{A90} 1-hour
13:00 to 14:00	56.7dB(A)	54.5dB(A)
14:00 to 15:00	57.1dB(A)	54.5dB(A)
15:00 to 16:00	58.9dB(A)	54.6dB(A)
16:00 to 17:00	57.1dB(A)	54.3dB(A)
17:00 to 18:00	57.0dB(A)	54.4dB(A)
18:00 to 19:00	56.2dB(A)	54.0dB(A)
19:00 to 20:00	57.3dB(A)	54.2dB(A)
20:00 to 21:00	58.3dB(A)	54.8dB(A)
21:00 to 22:00	60.3dB(A)	57.0dB(A)
22:00 to 23:00	59.1dB(A)	55.5dB(A)

Table 5: Hourly noise results from 13:00 to 23:00 at Location 1 on Saturday 24th January.

Table 6 details the calculated hourly averages for ambient noise level (L_{Aeq}) and background noise level (L_{A90}) from 07:00 and 12:00 at Location 1 on 25th January.

Time Period 25/01/2026	Measurement Parameters	
	L _{Aeq} 1-hour	L _{A90} 1-hour
07:00 to 08:00	54.5dB(A)	52.0dB(A)
08:00 to 09:00	55.2dB(A)	52.5dB(A)
09:00 to 10:00	55.8dB(A)	53.4dB(A)
10:00 to 11:00	57.8dB(A)	53.9dB(A)
11:00 to 12:00	56.1dB(A)	53.8dB(A)

Table 6: Hourly noise results from 07:00 to 12:00 at Location 1 on Sunday 25th January.

Figure 14 depicts the Location 2 background & residual noise measurements at Location 2 on the 24th January.



Figure 14: The view east from Location 2 with a tram approaching in the direction of Ashton.

Figure 15 depicts the Location 2 background & residual noise measurements at Location 2 on the 24th January looking back westwards to the site. The four A/C Units (Not in Operation) are approximately 14 metres from the measurement location.



Figure 15: The view west from Location 2 back at the fixed mechanical plant.

Location 2 is in the middle of Lock 8 as depicted in figure 16.



Figure 16: Lock 8.

The noise results obtained for the 15-minute measurements on Saturday 24th January at Location 2 commencing at 13:32 to 13:47 are detailed in table 7.

Location	2. Centre of Lock 8, Ashton Canal. 14 metres North East of A/C Units and 7 metres from nearest Tram Wall/Perimeter (NE). Closest first floor residential receptor approximately 30-35 metres North East from measurement location.
Time & Duration	13:32 to 13:47 15-Minute Measurement 24 th January 2026
Weather & Site Conditions	Partly cloudy sky, occasional gusts up to 2.8m/s, 8°C Site Conditions – All external fixed mechanical plant switched off. Constant background noise from water flowing through the lock. The lock has the main gate plus a free flowing section through the rear of the lock. Intermittent pedestrians, cyclists and dog walkers along the tow path during the measurement. Tram passed in the direction of Ashton on 13:37/13:38 (5-6 minutes into the measurement).
Measurement Parameter	Measurement Reading
L _{Aeq}	62.1dB(A)
L _{A10}	62.5dB(A)
L _{Amin}	60.4dB(A)
L _{Amax}	70.2dB(A)
L _{A90}	61.3dB(A)

Table 7: Noise results for 13:32 to 13:47 at Location 2 on the 24th January 2026.

The noise results obtained for the 15-minute measurements on Saturday 24th January at Location 2 commencing at 13:48 to 14:03 are detailed in table 8.

Sanctuary Acoustics Ltd

Location	2. Centre of Lock 8, Ashton Canal. 14 metres North East of A/C Units and 7 metres from nearest Tram Wall/Perimeter (NE). Closest first floor residential receptor approximately 30-35 metres North East from measurement location.
Time & Duration	13:48 to 14:03 15-Minute Measurement 24 th January 2026
Weather & Site Conditions	Partly cloudy sky, occasional gusts up to 2.8m/s, 8°C Site Conditions – All external fixed mechanical plant switched off. Constant background noise from water flowing through the lock. The lock has the main gate plus a free flowing section through the rear of the lock. Intermittent pedestrians and runners/joggers along the tow path during the measurement. Some large vehicles were also perceptible from Ashton New Road such as buses, HGV's and skip lorries Tram passed in the direction of Ashton on 13:53 (5-6 minutes into the measurement) this was then crossed with another tram travelling in the opposite direction to Media City. Between 10-11 minutes into the measurement on 13:58 into 13:59 the tram to Eccles passed. On 13 minutes at 14:01 two more trams pass each other opposite this measurement location heading to Eccles and Ashton respectively.
Measurement Parameter	Measurement Reading
L _{Aeq}	63.0dB(A)
L _{A10}	64.5dB(A)
L _{Amin}	60.4dB(A)
L _{Amax}	78.2dB(A)
L _{A90}	61.3dB(A)

Table 8: Noise results for 13:48 to 14:03 at Location 2 on the 24th January 2026.

Figure 17 depicts water flow through the lock.



Figure 17: Water flow through the lock.

The main noise from the flow of water however comes from the fast free flowing water that bypasses the lock as depicted in figure 18.



Figure 18: Free flowing water behind the lock.

Canada Geese were the noisiest waterfowl on the canal as depicted in figure 19 along with frequent walkers in the distance.



Figure 19: Canada Geese next to the site.

Figure 20 depicts insulated fixed plant on the lower roof with the metal enclosure surrounding the other designated lower roof plant as detailed in figures 7 & 9.



Figure 20: Lower roof plant.

In relation the *Hepworth Acoustics* Report, the daytime ambient noise measured by us at Location 1 range is lower than their stated L_{Aeq} range of 60 - 66dB(A) and their mean L_{A90} as well.

Figure 21 is taken from the *Hepworth Acoustics* report and relates to their summary of noise results.

Table 1: Summary of Noise Levels Measured (dB)

Description	Summary of Measured noise levels			Adopted representative background sound level $L_{A90,15min}$
	Range of $L_{Aeq,T}$	Mean $L_{A90,15min}$	Mode $L_{A90,15min}$	
Daytime period (07:00 – 23:00)	60 - 66	56	56	56
Evening period (19:00 – 23:00)	59 - 61	53	51	51
Night Period (23:00 – 07:00)	52 - 62	46	43	43

Figure 21: The *Hepworth Acoustics* summary of noise results.

Figures 22 & 23 make reference to Extrinsic Noise Maps which shows the daytime and night-time ambient noise levels, L_{Aeq} , on Ashton New Road. The noise levels impacting onto the first floor dwellings, in particular at the rear do relate to the *Hepworth Acoustic Range of $L_{Aeq,T}$ for the daytime and night-time periods.*

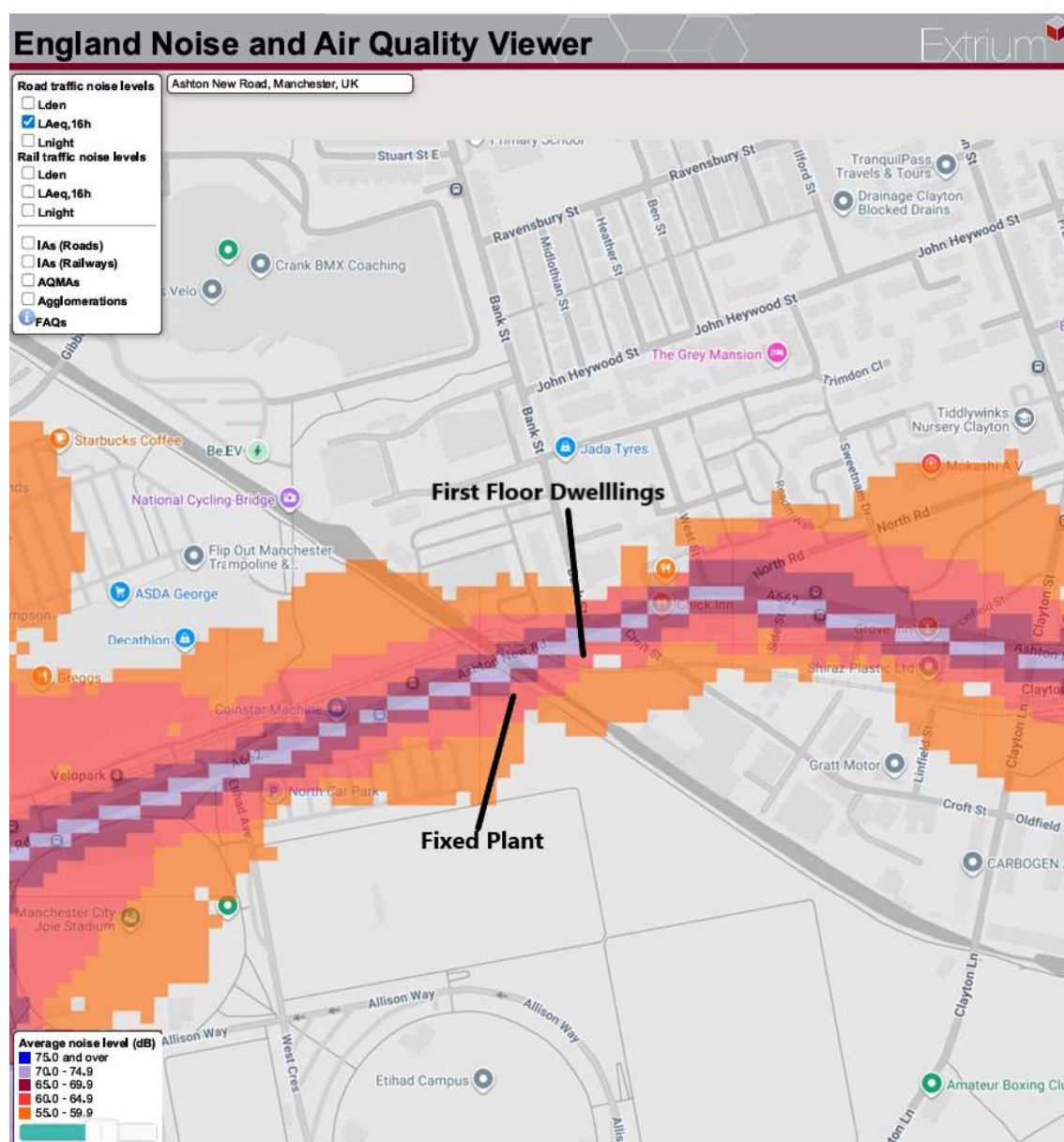


Figure 22: Extrinsic noise map for daytime L_{Aeq} , 16-hours.

The rear of the first floor dwellings would be in the range of 60-65dB(A) with the Extrium noise map also indicating that the level of traffic noise at ground level in the vicinity of the new fixed plant would also be in the region of a larger range of 55-65dB(A) during the day.

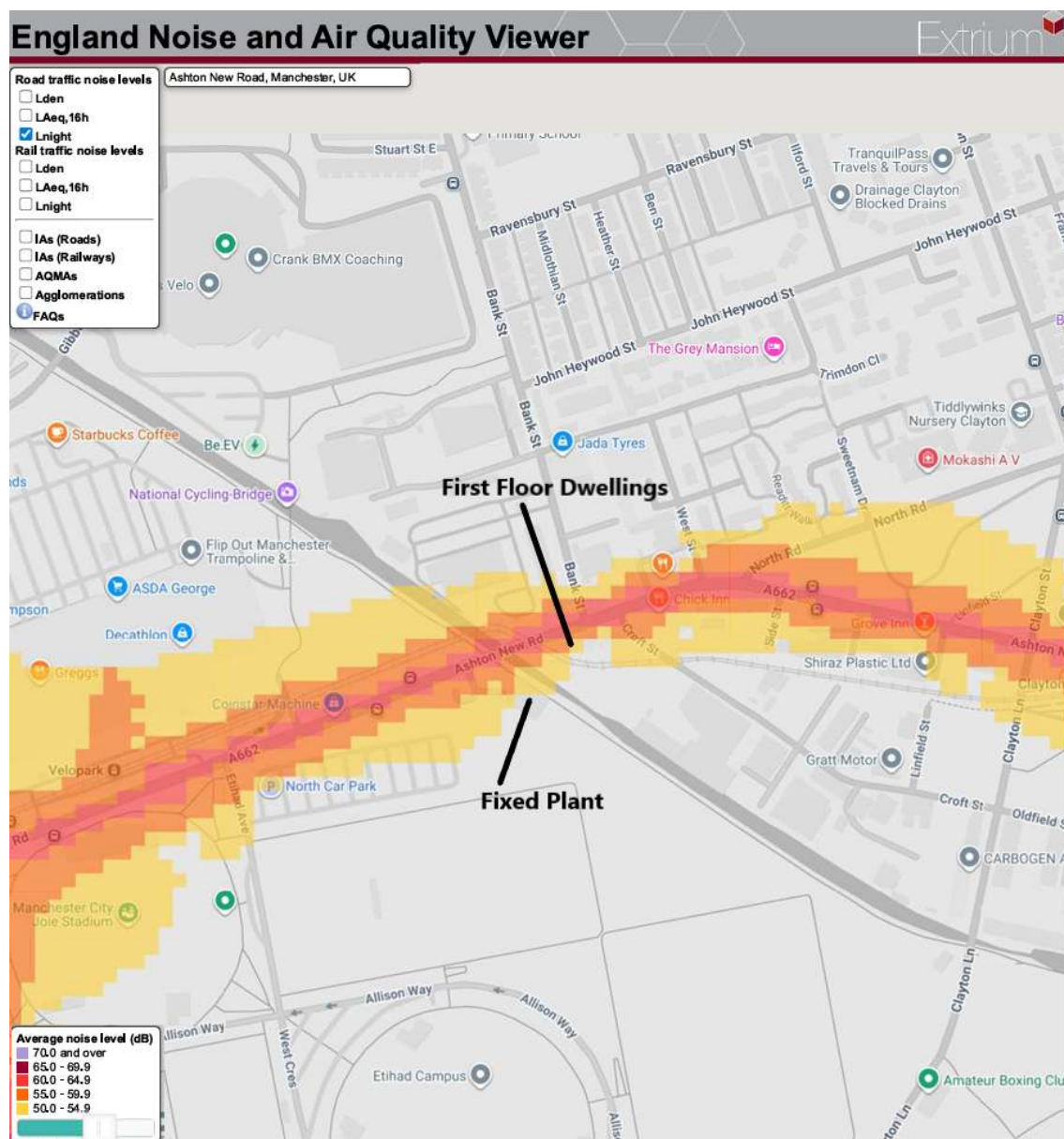


Figure 23: Extrium noise map for night-time L_{night} 8-hours.

The night-time Extrium noise map would indicate that the traffic noise level at the rear first floor dwellings is likely to be in the range of 55-60dB(A) at night but the impact of traffic noise onto the area housing the fixed plant may well be lower at 50-55dB(A).

The full Extrium noise maps are provided in Appendix B.

The second round of noise measurements undertaken by Sanctuary Acoustics began on the 30th January with the ambient noise results with fixed plant operative at Location 1 being taken from 14:00 to 23:00 which are detailed in table 9 below.

Sanctuary Acoustics Ltd

Time Period 30/01/2026	Measurement Parameters				
	L _{Aeq}	L _{Amin}	L _{Amax}	L _{A10}	L _{A90}
14:00 to 14:15	56.4dB(A)	53.4dB(A)	63.2dB(A)	58.0dB(A)	54.8dB(A)
14:15 to 14:30	56.1dB(A)	52.7dB(A)	64.7dB(A)	57.6dB(A)	54.5dB(A)
14:30 to 14:45	56.7dB(A)	52.8dB(A)	76.7dB(A)	57.8dB(A)	54.5dB(A)
14:45 to 15:00	56.0dB(A)	53.1dB(A)	66.4dB(A)	57.2dB(A)	54.5dB(A)
15:00 to 15:15	56.6dB(A)	53.2dB(A)	69.6dB(A)	58.5dB(A)	54.6dB(A)
15:15 to 15:30	56.7dB(A)	53.9dB(A)	68.2dB(A)	58.2dB(A)	55.0dB(A)
15:30 to 15:45	57.7dB(A)	53.8dB(A)	78.0dB(A)	58.6dB(A)	54.9dB(A)
15:45 to 16:00	55.8dB(A)	53.5dB(A)	65.9dB(A)	56.8dB(A)	54.5dB(A)
16:00 to 16:15	57.4dB(A)	53.2dB(A)	74.8dB(A)	57.8dB(A)	54.9dB(A)
16:15 to 16:30	56.9dB(A)	53.6dB(A)	67.0dB(A)	58.2dB(A)	55.1dB(A)
16:30 to 16:45	56.8dB(A)	54.0dB(A)	70.8dB(A)	57.8dB(A)	55.2dB(A)
16:45 to 17:00	56.4dB(A)	53.7dB(A)	64.5dB(A)	57.3dB(A)	55.1dB(A)
17:00 to 17:15	57.6dB(A)	53.3dB(A)	82.6dB(A)	58.1dB(A)	55.0dB(A)
17:15 to 17:30	56.4dB(A)	53.5dB(A)	68.2dB(A)	57.7dB(A)	54.8dB(A)
17:30 to 17:45	56.3dB(A)	53.9dB(A)	65.5dB(A)	57.3dB(A)	55.1dB(A)
17:45 to 18:00	57.8dB(A)	53.9dB(A)	76.2dB(A)	59.3dB(A)	55.0dB(A)
18:00 to 18:15	56.5dB(A)	53.8dB(A)	68.4dB(A)	57.6dB(A)	55.2dB(A)
18:15 to 18:30	57.4dB(A)	53.7dB(A)	74.4dB(A)	58.5dB(A)	55.0dB(A)
18:30 to 18:45	56.9dB(A)	54.0dB(A)	75.0dB(A)	58.1dB(A)	55.4dB(A)
18:45 to 19:00	58.4dB(A)	53.7dB(A)	78.9dB(A)	57.9dB(A)	55.1dB(A)
19:00 to 19:15	55.9dB(A)	53.2dB(A)	66.6dB(A)	57.1dB(A)	54.5dB(A)
19:15 to 19:30	56.4dB(A)	53.8dB(A)	64.8dB(A)	57.6dB(A)	55.0dB(A)
19:30 to 19:45	56.6dB(A)	53.5dB(A)	71.5dB(A)	57.8dB(A)	54.6dB(A)
19:45 to 20:00	56.0dB(A)	53.5dB(A)	74.2dB(A)	57.0dB(A)	54.6dB(A)
20:00 to 20:15	57.5dB(A)	53.1dB(A)	76.3dB(A)	58.2dB(A)	54.6dB(A)
20:15 to 20:30	60.4dB(A)	53.9dB(A)	66.4dB(A)	63.1dB(A)	55.5dB(A)
20:30 to 20:45	58.5dB(A)	52.8dB(A)	77.6dB(A)	59.6dB(A)	54.4dB(A)
20:45 to 21:00	56.3dB(A)	53.1dB(A)	71.5dB(A)	57.3dB(A)	54.5dB(A)
21:00 to 21:15	57.6dB(A)	53.3dB(A)	76.5dB(A)	58.7dB(A)	54.8dB(A)
21:15 to 21:30	57.3dB(A)	53.5dB(A)	73.5dB(A)	58.7dB(A)	55.1dB(A)
21:30 to 21:45	57.1dB(A)	53.9dB(A)	76.1dB(A)	58.0dB(A)	55.1dB(A)
21:45 to 22:00	56.1dB(A)	53.3dB(A)	65.4dB(A)	57.3dB(A)	54.7dB(A)
22:00 to 22:15	57.2dB(A)	53.5dB(A)	72.0dB(A)	58.7dB(A)	54.8dB(A)
22:15 to 22:30	57.4dB(A)	53.6dB(A)	80.7dB(A)	57.9dB(A)	55.0dB(A)
22:30 to 22:45	56.7dB(A)	53.2dB(A)	65.6dB(A)	58.4dB(A)	54.7dB(A)
22:45 to 23:00	57.8dB(A)	53.0dB(A)	76.1dB(A)	58.4 dB(A)	54.7dB(A)

Table 9: Noise results for 14:00 to 23:00 at Location 1 on the 30th January 2026.

The ambient noise results with fixed plant operative at Location 1 from 23:00 to 00:00 on the 30th January are detailed in table 10.

Time Period 30/01/2026	Measurement Parameters				
	L _{Aeq}	L _{Amin}	L _{Amax}	L _{A10}	L _{A90}
23:00 to 23:15	56.3dB(A)	53.1dB(A)	68.7dB(A)	57.7dB(A)	54.6dB(A)
23:15 to 23:30	55.6dB(A)	52.9dB(A)	66.7dB(A)	56.8dB(A)	54.2dB(A)
23:30 to 23:45	56.5dB(A)	53.2dB(A)	63.9dB(A)	57.9dB(A)	54.9dB(A)
23:45 to 00:00	56.7dB(A)	53.1dB(A)	75.7dB(A)	57.9dB(A)	54.6dB(A)

Table 10: Noise results for 23:00 to 00:00 at Location 1 on the 30th January 2026.

The ambient noise results with fixed plant operative at Location 1 from 00:00 to 07:00 on the 31st January are detailed in table 11.

Sanctuary Acoustics Ltd

Time Period 31/01/2026	Measurement Parameters				
	L _{Aeq}	L _{Amin}	L _{Amax}	L _{A10}	L _{A90}
00:00 to 00:15	55.5dB(A)	52.4dB(A)	62.0dB(A)	56.7dB(A)	54.0dB(A)
00:15 to 00:30	56.1dB(A)	52.8dB(A)	67.8dB(A)	57.7dB(A)	54.3dB(A)
00:30 to 00:45	55.5dB(A)	52.3dB(A)	62.3dB(A)	57.4dB(A)	53.5dB(A)
00:45 to 01:00	54.7dB(A)	51.9dB(A)	69.5dB(A)	55.9dB(A)	53.3dB(A)
01:00 to 01:15	53.6dB(A)	51.3dB(A)	60.8dB(A)	55.0dB(A)	52.4dB(A)
01:15 to 01:30	53.9dB(A)	51.5dB(A)	61.8dB(A)	55.3dB(A)	52.4dB(A)
01:30 to 01:45	53.7dB(A)	51.7dB(A)	62.8dB(A)	54.9dB(A)	52.5dB(A)
01:45 to 02:00	53.2dB(A)	51.4dB(A)	60.7dB(A)	54.4dB(A)	52.2dB(A)
02:00 to 02:15	53.0dB(A)	51.4dB(A)	56.9dB(A)	54.0dB(A)	52.1dB(A)
02:15 to 02:30	53.2dB(A)	51.3dB(A)	60.3dB(A)	54.2dB(A)	52.1dB(A)
02:30 to 02:45	53.2dB(A)	51.3dB(A)	70.5dB(A)	54.0dB(A)	52.0dB(A)
02:45 to 03:00	53.1dB(A)	51.2dB(A)	58.9dB(A)	54.1dB(A)	52.1dB(A)
03:00 to 03:15	52.9dB(A)	51.3dB(A)	56.6dB(A)	53.8dB(A)	52.0dB(A)
03:15 to 03:30	53.0dB(A)	50.7dB(A)	59.5dB(A)	54.3dB(A)	51.9dB(A)
03:30 to 03:45	52.7dB(A)	51.3dB(A)	58.1dB(A)	53.6dB(A)	52.0dB(A)
03:45 to 04:00	52.5dB(A)	51.1dB(A)	56.7dB(A)	53.4dB(A)	51.8dB(A)
04:00 to 04:15	52.7dB(A)	51.2dB(A)	58.0dB(A)	53.8dB(A)	51.9dB(A)
04:15 to 04:30	52.7dB(A)	50.9dB(A)	57.4dB(A)	53.7dB(A)	51.8dB(A)
04:30 to 04:45	52.7dB(A)	51.0dB(A)	61.3dB(A)	53.7dB(A)	51.7dB(A)
04:45 to 05:00	52.6dB(A)	50.9dB(A)	59.1dB(A)	53.6dB(A)	51.8dB(A)
05:00 to 05:15	52.7dB(A)	51.0dB(A)	59.2dB(A)	53.5dB(A)	51.9dB(A)
05:15 to 05:30	52.7dB(A)	51.1dB(A)	57.1dB(A)	53.7dB(A)	51.9dB(A)
05:30 to 05:45	53.6dB(A)	51.4dB(A)	59.8dB(A)	54.8dB(A)	52.3dB(A)
05:45 to 06:00	53.4dB(A)	51.1dB(A)	62.5dB(A)	54.6dB(A)	52.1dB(A)
06:00 to 06:15	53.8dB(A)	51.1dB(A)	61.8dB(A)	55.3dB(A)	52.1dB(A)
06:15 to 06:30	53.6dB(A)	51.2dB(A)	60.9dB(A)	55.1dB(A)	52.2dB(A)
06:30 to 06:45	54.4dB(A)	51.3dB(A)	68.9dB(A)	55.8dB(A)	52.3dB(A)
06:45 to 07:00	54.2dB(A)	51.7dB(A)	69.0dB(A)	55.5dB(A)	52.6dB(A)

Table 11: Noise results for 00:00 to 07:00 at Location 1 on the 31st January 2026.

The background and residual noise results with fixed plant operative at Location 1 from 07:00 to 12:45 on the 31st January are detailed in table 12.

Sanctuary Acoustics Ltd

Time Period 31/01/2026	Measurement Parameters				
	L _{Aeq}	L _{Amin}	L _{Amax}	L _{A10}	L _{A90}
07:00 to 07:15	54.5dB(A)	51.6dB(A)	68.4dB(A)	55.8dB(A)	52.6dB(A)
07:15 to 07:30	54.6dB(A)	51.8dB(A)	66.1dB(A)	56.3dB(A)	52.8dB(A)
07:30 to 07:45	54.4dB(A)	51.7dB(A)	65.3dB(A)	56.0dB(A)	52.6dB(A)
07:45 to 08:00	55.8dB(A)	52.3dB(A)	66.6dB(A)	58.0dB(A)	53.5dB(A)
08:00 to 08:15	55.5dB(A)	52.0dB(A)	71.4dB(A)	56.9dB(A)	53.0dB(A)
08:15 to 08:30	54.8dB(A)	52.0dB(A)	65.3dB(A)	56.2dB(A)	53.1dB(A)
08:30 to 08:45	55.5dB(A)	51.9dB(A)	64.3dB(A)	57.4dB(A)	53.2dB(A)
08:45 to 09:00	55.3dB(A)	52.5dB(A)	65.7dB(A)	56.7dB(A)	53.6dB(A)
09:00 to 09:15	55.1dB(A)	52.3dB(A)	64.9dB(A)	56.5dB(A)	53.5dB(A)
09:15 to 09:30	54.9dB(A)	52.1dB(A)	64.3dB(A)	56.2dB(A)	53.3dB(A)
09:30 to 09:45	55.7dB(A)	52.3dB(A)	69.1dB(A)	57.2dB(A)	53.4dB(A)
09:45 to 10:00	55.1dB(A)	52.2dB(A)	61.0dB(A)	56.3dB(A)	53.6dB(A)
10:00 to 10:15	55.8dB(A)	52.5dB(A)	63.7dB(A)	57.7dB(A)	53.8dB(A)
10:15 to 10:30	55.5dB(A)	52.3dB(A)	70.2dB(A)	56.7dB(A)	53.7dB(A)
10:30 to 10:45	54.9dB(A)	52.0dB(A)	65.3dB(A)	56.3dB(A)	53.3dB(A)
10:45 to 11:00	55.3dB(A)	52.0dB(A)	67.9dB(A)	56.5dB(A)	53.6dB(A)
11:00 to 11:15	55.0dB(A)	52.5dB(A)	75.1dB(A)	55.8dB(A)	53.6dB(A)
11:15 to 11:30	56.1dB(A)	52.4dB(A)	68.8dB(A)	57.7dB(A)	53.8dB(A)
11:30 to 11:45	54.9dB(A)	52.2dB(A)	66.3dB(A)	56.0dB(A)	53.6dB(A)
11:45 to 12:00	55.7dB(A)	52.7dB(A)	67.6dB(A)	57.3dB(A)	53.9dB(A)
12:00 to 12:15	55.0dB(A)	52.7dB(A)	60.0dB(A)	56.3dB(A)	53.8dB(A)
12:15 to 12:30	55.2dB(A)	51.8dB(A)	66.4dB(A)	56.1dB(A)	53.4dB(A)
12:30 to 12:45	54.7dB(A)	51.0dB(A)	70.1dB(A)	56.0dB(A)	52.3dB(A)

Table 12: Noise results for 07:00 to 12:45 at Location 1 on the 31st January 2026.

Table 13 details the calculated hourly averages for ambient noise level (L_{Aeq}) and background noise level (L_{A90}) from 14:00 and 23:00 at Location 1 on 30th January.

Time Period 30/01/2026	Measurement Parameters	
	L _{Aeq} 1-hour	L _{A90} 1-hour
14:00 to 15:00	56.3dB(A)	54.6dB(A)
15:00 to 16:00	56.8dB(A)	54.8dB(A)
16:00 to 17:00	56.9dB(A)	55.1dB(A)
17:00 to 18:00	57.1dB(A)	55.0dB(A)
18:00 to 19:00	57.4dB(A)	55.2dB(A)
19:00 to 20:00	56.2dB(A)	54.7dB(A)
20:00 to 21:00	58.4dB(A)	54.8dB(A)
21:00 to 22:00	57.1dB(A)	54.9dB(A)
22:00 to 23:00	57.3dB(A)	54.8dB(A)

Table 13: Hourly noise results from 14:00 to 23:00 at Location 1 on Friday 30th January.

Table 14 details the calculated hourly averages for ambient noise level (L_{Aeq}) and background noise level (L_{A90}) from 07:00 and 12:00 at Location 1 on 31st January.

Time Period 31/01/2026	Measurement Parameters	
	L _{Aeq} 1-hour	L _{A90} 1-hour
07:00 to 08:00	54.9dB(A)	52.9dB(A)
08:00 to 09:00	55.3dB(A)	53.2dB(A)
09:00 to 10:00	55.2dB(A)	53.5dB(A)
10:00 to 11:00	55.4dB(A)	53.6dB(A)
11:00 to 12:00	55.5dB(A)	53.7dB(A)

Table 14: Hourly noise results from 07:00 to 12:00 at Location 1 on Saturday 31st January.

The noise results obtained for the 15-minute measurements on Saturday 31st January at Location 2 commencing at 13:32 to 13:47 with fixed plant operating are detailed in table 15.

Location	2. Centre of Lock 8, Ashton Canal. 14 metres North East of A/C Units and 7 metres from nearest Tram Wall/Perimeter (NE). Closest first floor residential receptor approximately 30-35 metres North East from measurement location.
Time & Duration	13:38 to 13:53 15-Minute Measurement 31 st January 2026
Weather & Site Conditions	Partly cloudy sky, occasional gusts up to 1.2m/s, 9°C Site Conditions – All external fixed mechanical plant switched on. Constant background noise from water flowing through the lock. The lock has the main gate plus a free flowing section through the rear of the lock. Intermittent pedestrians along the tow path during the measurement and the sound of Canada geese. The Air Source Heat Pump was not perceptible but the A/C Units were at intervals perceptible at low level when other noise sources impacting onto the area were not sufficiently large enough to mask all the fixed plant noise in it's entirety. Vehicles were also perceptible at the measurement location from Ashton New Road. Tram passed in the direction of Eccles passed on 13:39 (1 minute into the measurement), tram to Ashton passed 13:43 and an emergency vehicle siren was noted on 13:50. During the last 20 seconds of the measurement period a tram to Eccles passed the location.
Measurement Parameter	Measurement Reading
L _{Aeq}	62.7dB(A)
L _{A10}	62.7dB(A)
L _{Amin}	60.3dB(A)
L _{Amax}	71.7dB(A)
L _{A90}	61.3dB(A)

Table 15: Noise results for 13:38 to 13:53 at Location 2 on the 31st January 2026.

The comparison between the table 15 measurements above with the fixed plant operating and the earlier tables 7 & 8 taken at the same time of day, albeit 7-days previously without the fixed plant operating, show that at Location 2, which is 14 metres from the A/C Units, that it does not appear to be affected by the fixed plant, as both ambient (L_{Aeq}) and background (L_{A90}) noise levels appear to have remained static.

Sanctuary Acoustics Ltd

The Location 3 measurement, taken 10 metres to the south east of the air source heat pump is depicted in figure 24.



Figure 24: Location 3 10 metres from the air source heat pump.

The measurement of the air source heat pump when operating was taken at 10 metres as per the sound pressure level data made available which was measured at 10 metres by the manufacturer. Table 16 details the measured on site noise measurements.

Sanctuary Acoustics Ltd

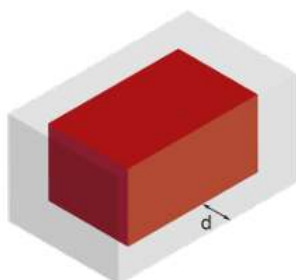
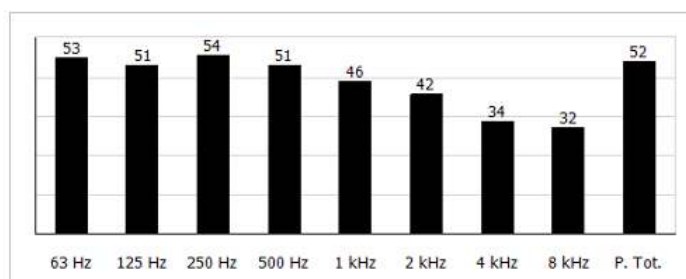
Location	3. Air Source Heat Pump. 10 Metres South East of the main plant.
Time & Duration	13:01 to 13:06 5-Minute Measurement 30 th January 2026
Weather & Site Conditions	Partly cloudy sky, occasional gusts up to 1.5m/s, 7°C Site Conditions – All external fixed mechanical plant switched on. Constant background noise from water flowing through the lock. The lock has the main gate plus a free flowing section through the rear of the lock. Birdsong and road traffic from Ashton New Road also perceptible at measurement location. In addition to these mostly natural and vehicular noise sources, the mechanical noise from the air source heat pump and the A/C Units were also perceptible. Tram passed in the direction of Ashton on 13:05 (4 minutes into the measurement).
Measurement Parameter	Measurement Reading
L _{Aeq}	54.3dB(A)
L _{A10}	55.5dB(A)
L _{Amin}	52.3dB(A)
L _{Amax}	61.5dB(A)
L _{A90}	53.2dB(A)

Table 16: Air source heat pump data when operating. Measurement taken from 13:01 to 13:06 at Location 3 on the 30th January 2026.

Figure 25 depicts an extract from the manufacturers literature which states a sound pressure level of 52dB(A) at 10 metres. This criteria has been underlined and highlighted in red.

1.6 NOISE DATA

SOUND DATA COLD									
Frequencies	Hz	63	125	250	500	1000	2000	4000	8000
Sound power (spectrum)	dB	85	83	86	83	78	74	66	64
Total sound power level in cooling	dB(A)	84							
Sound pressure level (spectrum)	dB	53	51	54	51	46	42	34	32
Total sound Pressure	dB(A)	52							



SOUND DATA OUTDOOR HOT		
Total sound power level in heating	dB(A)	84
Note		
Distance	m	10
Note Average sound pressure level at 10 m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level. Sound power on the basis of measurements taken in compliance with ISO 9614.		

Figure 25: The air source heat pump sound pressure data at 10 metres.

The measurement taken has the specific noise data at 10 metres at 54.3dB(A) which is in the ballpark of the 52dB(A) from the manufacturer's literature.

As noted in the table, other noise sources in the area were impacting onto this measurement and so it was not a strict measurement. It would have been more prudent for the manufacturer to have measured the sound pressure level of the air source heat pump in closer quarters at 1 metre or 3 metres.

The Location 4 measurement, taken 3 metres to the west of the air conditioning units is depicted in figure 26.



Figure 26: Location 4, 3 metres from the air handling units.

The Location 4 measurement, taken 3 metres to the west of the air conditioning units with the air source heat pump to the south is depicted in figure 27.



Figure 27: Location 4, 3 metres from the air handling units with the air source heat pump to the south.

Sanctuary Acoustics Ltd

The Location 4 measurement of the air conditioning units when operating was taken at 3 metres to the west and into the site. Table 17 details the measured on site noise measurements. The A/C units were the dominant fixed plant noise.

Location	4. Air Handling Units (A/C Units). 3 Metres West of the A/C Units (into the site).
Time & Duration	13:02 to 13:07 5-Minute Measurement 30 th January 2026
Weather & Site Conditions	Partly cloudy sky, occasional gusts up to 1.5m/s, 7 ^o C Site Conditions – All external fixed mechanical plant switched on. Constant background noise from water flowing through the lock. The lock has the main gate plus a free flowing section through the rear of the lock. Birdsong and road traffic from Ashton New Road also perceptible at measurement location. In addition to these mostly natural and vehicular noise sources, the mechanical noise from the air source heat pump and the A/C Units were also perceptible. Trades laughing inside the building were also perceptible. Tram passed in the direction of Ashton on 13:05 (3 minutes into the measurement).
Measurement Parameter	Measurement Reading
L _{Aeq}	64.4dB(A)
L _{A10}	66.3dB(A)
L _{Amin}	59.9dB(A)
L _{Amax}	67.6dB(A)
L _{A90}	61.5dB(A)

Table 17: Air conditioning units data when operating. Measurement taken from 13:02 to 13:07 at Location 4 on the 30th January 2026.

The second Location 4 measurement of the air conditioning units when operating was taken at 3 metres to the west and into the site. Table 18 details the measured on site noise measurements. The A/C units were the dominant fixed plant noise.

Sanctuary Acoustics Ltd

Location	4. Air Handling Units (A/C Units). 3 Metres West of the A/C Units (into the site).
Time & Duration	13:13 to 13:18 5-Minute Measurement 30 th January 2026
Weather & Site Conditions	Partly cloudy sky, occasional gusts up to 1.5m/s, 7°C Site Conditions – All external fixed mechanical plant switched on. Constant background noise from water flowing through the lock. The lock has the main gate plus a free flowing section through the rear of the lock. Birdsong and road traffic from Ashton New Road also perceptible at measurement location. In addition to these mostly natural and vehicular noise sources, the mechanical noise from the air source heat pump and the A/C Units were also perceptible. Trades laughing inside the building were also perceptible.
Measurement Parameter	Measurement Reading
L _{Aeq}	56.9dB(A)
L _{A10}	67.6dB(A)
L _{Amin}	62.2dB(A)
L _{Amax}	69.9dB(A)
L _{A90}	63.6dB(A)

Table 18: The second measurement of the air conditioning units data when operating. Measurement taken from 13:13 to 13:18 at Location 4 on the 30th January 2026.

The Location 5 measurement is depicted in figure 28.



Figure 28: Location 5, 2 metres from the air handling units at the boundary fence.

The Location 5 measurement of the air conditioning units when operating was taken at 2 metres to the east of the A/C Units at the boundary fence. Table 19 details the

measured on site noise measurements. The A/C units were the dominant fixed plant noise.

Location	5. Air Handling Units (A/C Units). 2 Metres East of the A/C Units (at site boundary).
Time & Duration	13:13 to 13:18 5-Minute Measurement 30 th January 2026
Weather & Site Conditions	Partly cloudy sky, occasional gusts up to 1.5m/s, 7°C Site Conditions – All external fixed mechanical plant switched on. Constant background noise from water flowing through the lock. The lock has the main gate plus a free flowing section through the rear of the lock. Birdsong and road traffic from Ashton New Road also perceptible at measurement location. In addition to these mostly natural and vehicular noise sources, the mechanical noise from the A/C Units were also perceptible. Tram passed in the direction of Ashton on 13:15 (2 minutes into the measurement).
Measurement Parameter	Measurement Reading
L _{Aeq}	65.6dB(A)
L _{A10}	66.7dB(A)
L _{Amin}	63.1dB(A)
L _{Amax}	68.0dB(A)
L _{A90}	64.2dB(A)

Table 19: Air conditioning units data when operating. Measurement taken from 13:13 to 13:18 at Location 5 on the 30th January 2026.

The 4 x air conditioning units in figure 26 have been identified by the M&E Engineers with specific model numbers as depicted in figure 29.

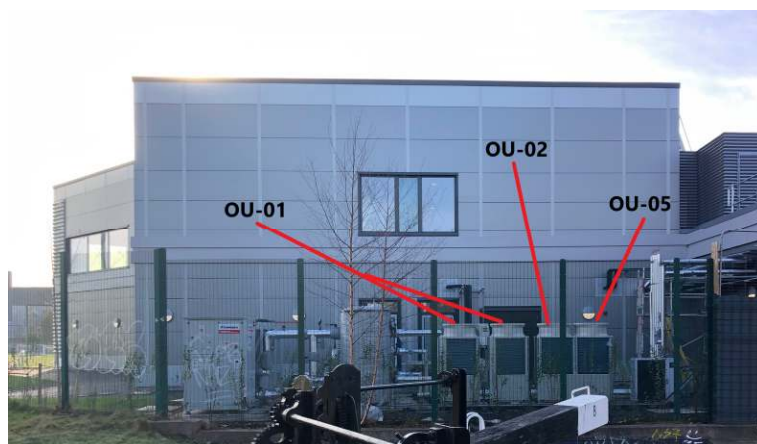
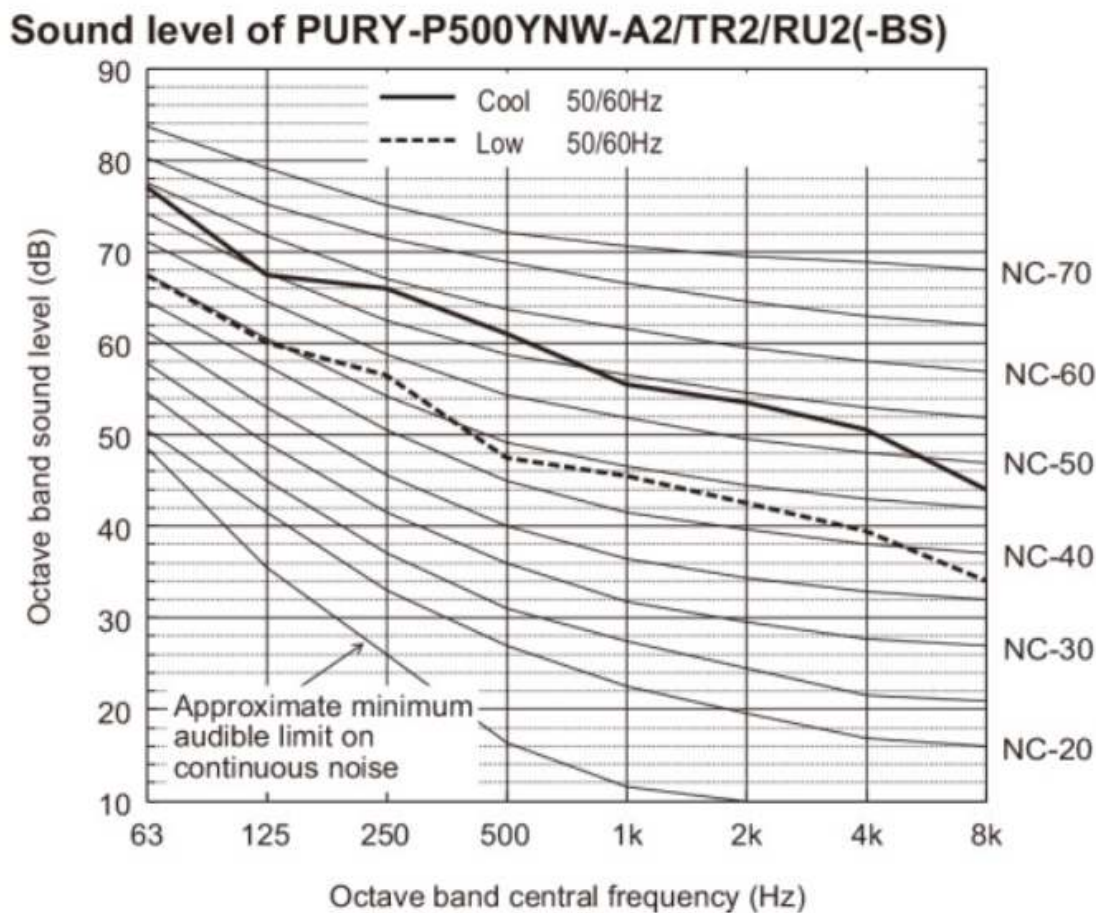


Figure 29: The two A/C Units labelled as OU-01 are for the gym, OU-02 is for the office and OU-05 is for the refectory.

Each of these three models of units have two sound pressure levels; one for standard cooling and one for the low noise mode.

The sound pressure data is assumed to be representative at 1 metre.

Figure 30 depicts the manufacturers literature for OU-01 or model number PURY-P500YNW-A2/TR2/RU2(-BS) which states a sound pressure level of 63.5dB(A) for Standard Cooling and 53.0dB(A) for Low Noise Mode.



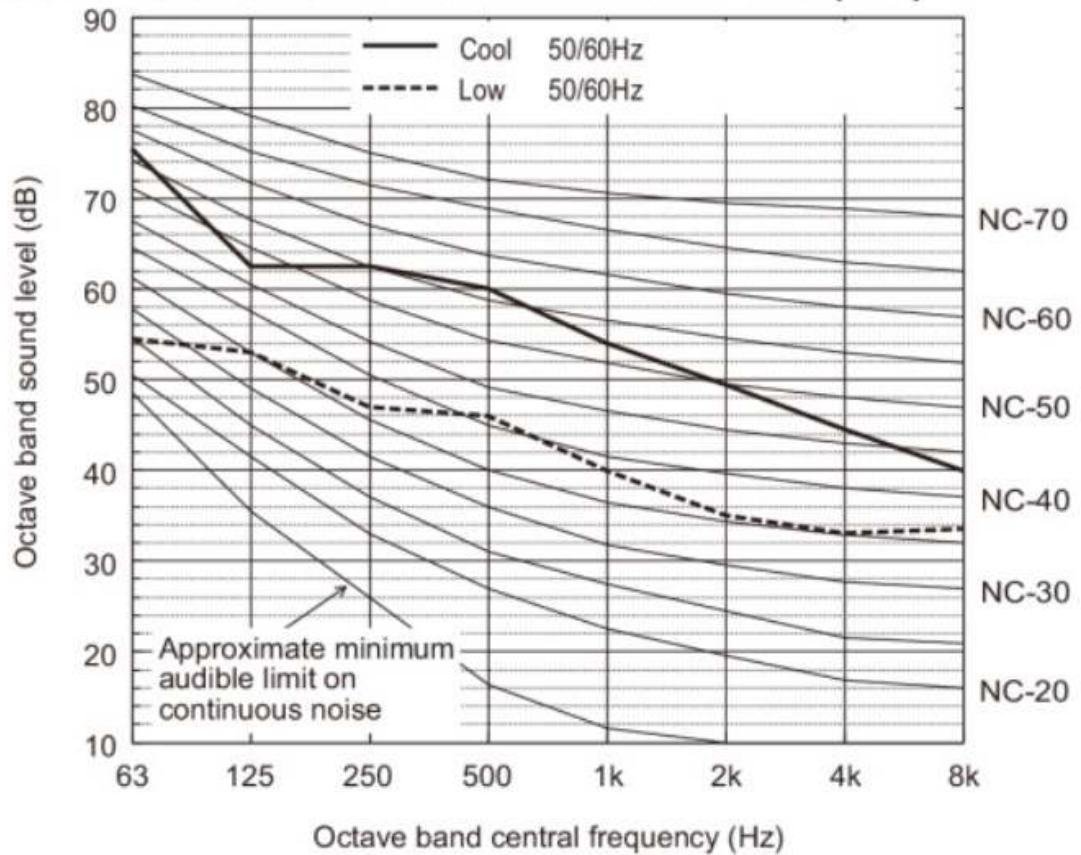
		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard Cooling	50/60Hz	77.0	67.5	66.0	61.0	55.5	53.5	50.5	44.0	63.5
Low noise mode	50/60Hz	67.5	60.0	56.5	47.5	45.5	42.5	39.5	34.0	53.0

When Low noise mode is set, the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

Figure 30: A/C Unit labelled as OU-01 or model number PURY-P500YNW-A2/TR2/RU2(-BS).

Figure 31 depicts the manufacturers literature for OU-02 or model number PURY-P300YNW-A2/TR2/RU2(-BS) which states a sound pressure level of 61.0dB(A) for Standard Cooling and 47.0dB(A) for Low Noise Mode.

Sound level of PURY-P300YNW-A2/TR2/RU2(-BS)



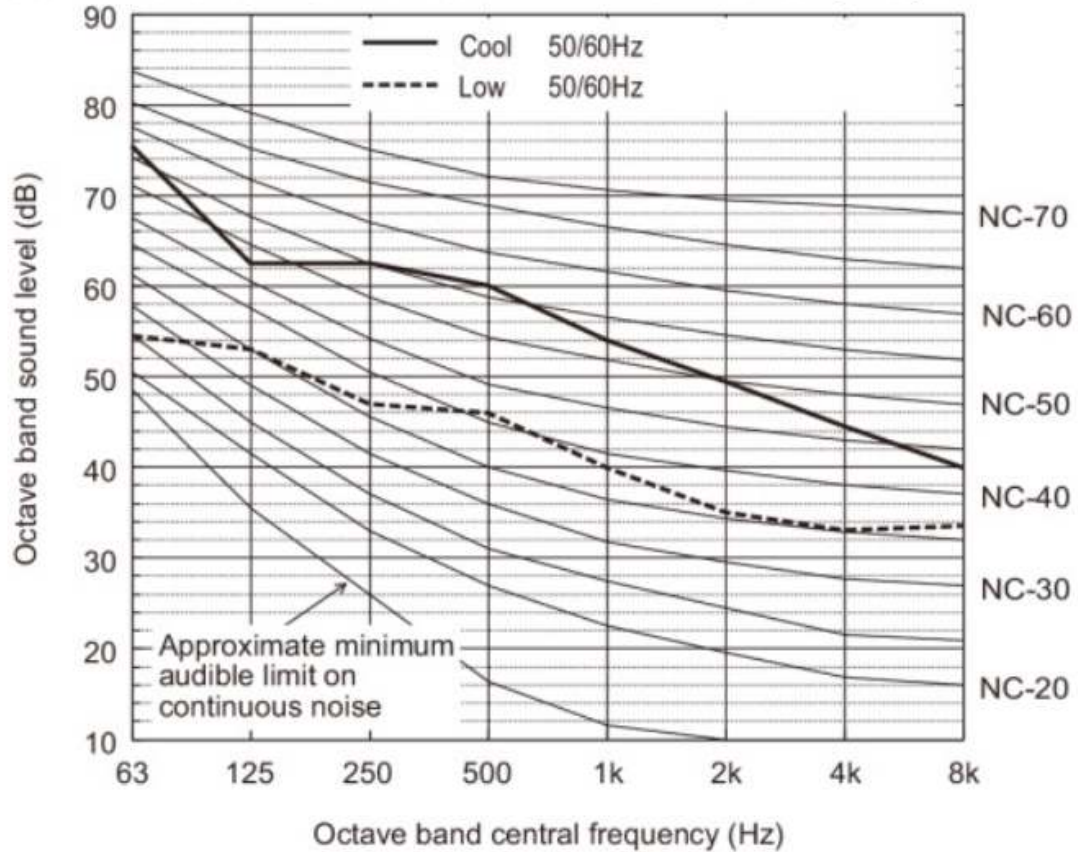
		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard Cooling	50/60Hz	75.5	62.5	62.5	60.0	54.0	49.5	44.5	40.0	61.0
Low noise mode	50/60Hz	54.5	53.0	47.0	46.0	40.0	35.0	33.0	33.5	47.0

When Low noise mode is set, the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

Figure 31: A/C Unit labelled as OU-02 or model number PURY-P300YNW-A2/TR2/RU2(-BS).

Figure 32 depicts the manufacturers literature for OU-05 or model number PURY-P300YNW-A2/TR2/RU2(-BS) which states a sound pressure level of 61.0dB(A) for Standard Cooling and 47.0dB(A) for Low Noise Mode.

Sound level of PURY-P300YNW-A2/TR2/RU2(-BS)



		63	125	250	500	1k	2k	4k	8k	dB(A)
Standard Cooling	50/60Hz	75.5	62.5	62.5	60.0	54.0	49.5	44.5	40.0	61.0
Low noise mode	50/60Hz	54.5	53.0	47.0	46.0	40.0	35.0	33.0	33.5	47.0

When Low noise mode is set, the A/C system's capacity is limited. The system could return to normal operation from Low noise mode automatically in the case that the operation condition is severe.

Figure 32: A/C Unit labelled as OU-05 or model number PURY-P300YNW-A2/TR2/RU2(-BS).

The cumulative effect of all 4 x air conditioning units running simultaneously in Standard Cooling would have the following sound pressure level at 1 metre;

$$SPL_{Total} = 10 \log_{10}(10^{6.35} + 10^{6.35} + 10^{6.10} + 10^{6.10})$$

$$SPL_{Total} = 68.4\text{dB(A)} @1 \text{ metre}$$

The measured on site data with the ambient/specific noise levels, L_{Aeq} , at Location 4 of 64.4dB(A) and 56.9dB(A) at 3 metres plus the Location 5 measurement of 65.6dB(A) at 2 metres not only indicate that other noise sources are impacting onto the measurement location but also that the manufacturers sound pressure data has not been exceeded.

In addition to the 10 metre measurement of the air source heat pump to the south, a further two measurements at 10 metres from the air source heat pump were also taken but at 10 metres to the east on the tow path. This measurement location was referred to as Location 6 and was taken on the 30th January.

Figure 33 depicts measurement Location 6.



Figure 33: Measurement Location 6, 10 metres from the plant.

The noise results obtained for the 5-minute measurement on Friday 30th January at Location 6 commencing at 14:18 to 14:23 are detailed in table 20.

Location	6. Ashton Canal Tow Path. 10 metres North East of A/C Units/Air Source Heat Pump plant and 11 metres from nearest Tram Wall/Perimeter (NE). Closest first floor residential receptor approximately 35-40 metres North East from measurement location.
Time & Duration	14:18 to 14:23 5-Minute Measurement 30 th January 2026
Weather & Site Conditions	Partly cloudy sky, occasional gusts up to 1.5m/s, 7°C Site Conditions – All external fixed mechanical plant switched on. Constant noise from both A/C Units and water flowing through the lock. The lock has the main gate plus a free flowing section through the rear of the lock. Birdsong and road traffic from Ashton New Road also perceptible at measurement location. In addition to these mostly natural and vehicular noise sources, the mechanical noise from the air source heat pump and the A/C Units were also perceptible. Intermittent sounds such as banging, sawing, cutting, drilling from inside the building were also perceptible.
Measurement Parameter	Measurement Reading
L _{Aeq}	61.5dB(A)
L _{A10}	62.2dB(A)
L _{Amin}	59.6dB(A)
L _{Amax}	79.6dB(A)
L _{A90}	60.6dB(A)

Table 20: Noise results for 14:18 to 14:23 at Location 6 on the 30th January 2026.

The noise results obtained for the 5-minute measurement on Friday 30th January at Location 6 commencing at 14:24 to 14:29 are detailed in table 21.

Sanctuary Acoustics Ltd

Location	6. Ashton Canal Tow Path. 10 metres North East of A/C Units/Air Source Heat Pump plant and 11 metres from nearest Tram Wall/Perimeter (NE). Closest first floor residential receptor approximately 35-40 metres North East from measurement location.
Time & Duration	14:24 to 14:29 5-Minute Measurement 30 th January 2026
Weather & Site Conditions	Partly cloudy sky, occasional gusts up to 1.5m/s, 7°C Site Conditions – All external fixed mechanical plant switched on. Constant noise from both A/C Units and water flowing through the lock. The lock has the main gate plus a free flowing section through the rear of the lock. Birdsong and road traffic from Ashton New Road also perceptible at measurement location. In addition to these mostly natural and vehicular noise sources, the mechanical noise from the air source heat pump and the A/C Units were also perceptible. Tram to Eccles passes at 14:24 and tram to Ashton passes at 14:29 Walkers along the towpath and cyclists also passed the measurement location during the measurement.
Measurement Parameter	Measurement Reading
L _{Aeq}	62.0dB(A)
L _{A10}	62.8dB(A)
L _{Amin}	60.0dB(A)
L _{Amax}	67.5dB(A)
L _{A90}	61.0dB(A)

Table 21: Noise results for 14:24 to 14:29 at Location 6 on the 30th January 2026.

The noise measurements at Location 6 would appear to show that the air conditioning units noise was dominant over the air source heat pumps, but other noise sources were also prevalent adding to the cumulative effect.

The difference between the Location 6 and Location 2 results are significantly impacted by the sound of flowing water and passing trams.

The difference in distance was only 4 metres but the 4 metres further east into the lock complex and therefore closer to the first floor dwellings, does show a reduction in fixed plant noise but also the impact of the masking effect provided by the constant flow of water and intermittent trams and large vehicles on Ashton New Road.

3. ANALYSIS

The air conditioning units will behave as a point source. A point source is one which is so small in both horizontal and vertical dimensions that when the distance increases and the receiver moves away from the source, it can be thought of as a point in space. As the distance is increased, the A/C Units will look like a point in space.

The sound from a point source radiates into space in all directions. If the wavefront radiating from the centre point is thought of as a sphere, then as time increases, the size of the sphere increases. The sound is spread over the surface area of the sphere. As time increases, the sphere grows, and the area over which the sound is spread increases. This means that the sound pressure level reduces with distance because energy is spread over a greater area. This spreading of energy over a greater area as the sphere increases is illustrated in figure 34 below. The black area at r becomes spread over four times the area by the time it reaches $2r$. This is shown as the grey area at $2r$, where r is the distance from the sound source.

The sound intensity (I) at $2r$ (in one of the four grey areas) is a quarter of that experienced in the black area at r (which is the same size as each of the four grey areas). This is because the energy has been spread over four times the original area due to the doubling of distance. This reduction corresponds to a $20\log$ distance attenuation (which is a 6dB reduction per doubling of distance).

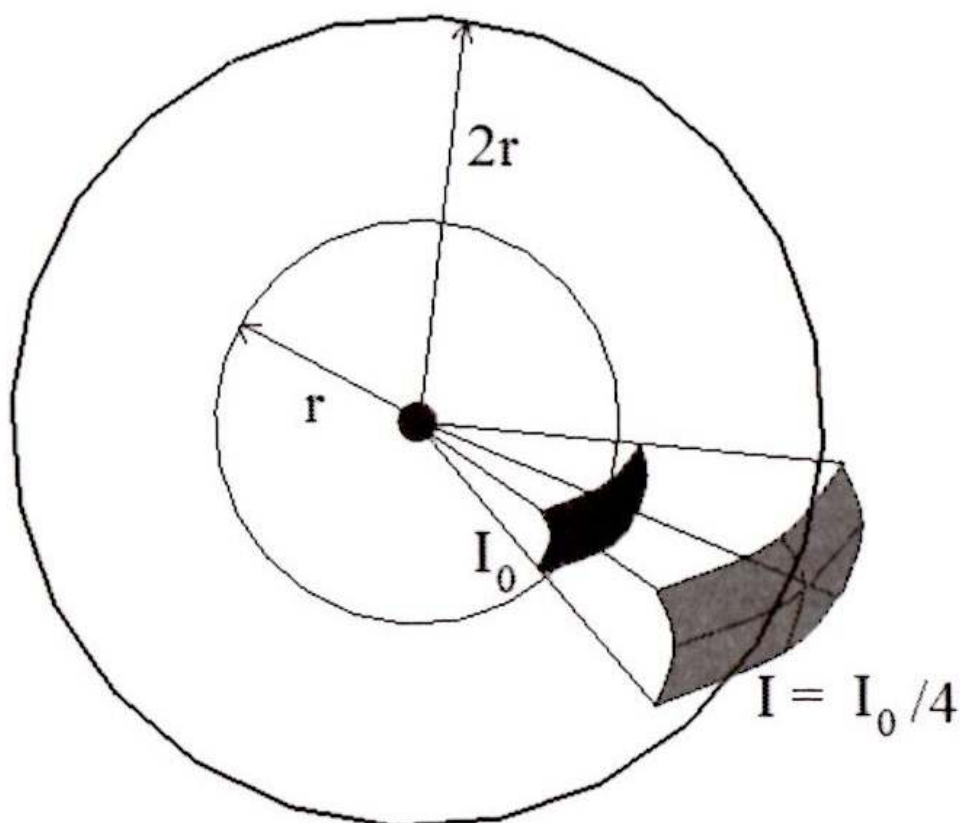


Figure 34: Point source radiating out.

The following equation is used to correct a sound pressure level measured at a known distance from a point source, to another location at a different distance from the point source. Knowing both the distance of the measurement from the source and

the distance of the new receiver location from the source is critical, so this must always be recorded.

$$SPL_2 = SPL_1 - 20\log_{10}\left(\frac{r_2}{r_1}\right)$$

Where r_1 and r_2 are distances in the same units.

r_2 being the receiver distance;

r_1 being the measurement distance;

and SPL_1 is the noise level measured at r_1

Usually, sound is radiating into only half a sphere, because most sources are located near to the ground. This propagation over a reflective surface is called hemispherical radiation. The measured sound pressure level will already have a ground reflection included and the distance attenuation for hemispherical radiation is still $20\log(\text{distance})$. The sound pressure level is simply 3dB higher than a spherical radiation as the ground reflects half of the energy upwards. Figure 35 shows a hemispherical radiation over time, similar to that given for spherical radiation.

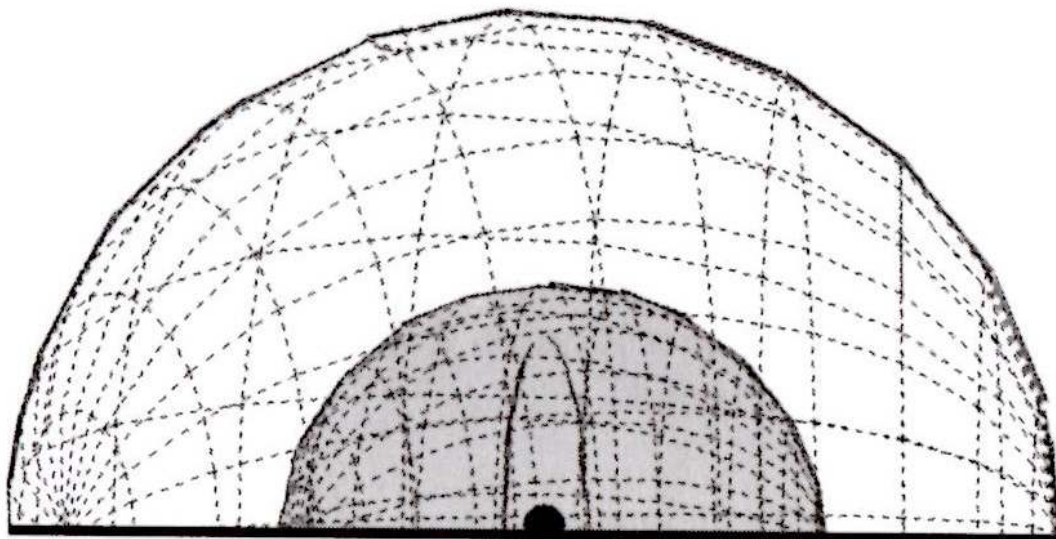


Figure 35: Hemispherical radiation.

The distances provided for the site boundaries and the nearest first floor dwellings are as follows;

Based upon the site visits in January in which physical distances were also measured between measurement locations, items of fixed plant, the tram lines and first floor dwellings at the rear, the distance from the fixed plant close to the eastern site boundary and the rear dwellings is approximately 50 metres.

A/C Units to Location 6 (Tow Path) to Rear 1st Floor Dwellings – The distance from the A/C Units to Measurement Location 6 on the tow path is 10 metres with the nearest first floor dwellings approximately 40 metres to the east which gives a total distance from source to receiver of approximately 50m. The first measurement at Location 6, 14:18 to 14:23 on the 30th January has been used in this instance with the ambient noise/specific noise, L_{Aeq} as the SPL_1 due to the fact that no tram pass took place during this measurement.

Therefore,

$$r_2 = 50\text{m}$$

$$r_1 = 10\text{m}$$

$$\text{SPL}_1 = 61.5\text{dB(A)}$$

Where,

$$\text{SPL}_2 = \text{SPL}_1 - 20\log_{10}\left(\frac{r_2}{r_1}\right)$$

$$\text{SPL}_2 = 61.5 - 20\log_{10}\left(\frac{50}{10}\right)$$

$$\text{SPL}_2 = 61.5 - 14.0$$

SPL₂ = 47.5dB(A) at the first floor receiver.

The predicted noise level from all external ground floor fixed mechanical plant which was audible (none of the upper roof and lower roof plant was perceptible at Location 1) over distance impacting onto the first floor dwellings is approximately 47.5dB(A). However, it should be noted that the distance from the canal boundary with the tramline to the nearest first floor residential dwelling is approximate. It must also be considered that noise levels fluctuate with passing trams which operate over an approximate 18-hour period and differences in traffic volume, but the noise results taken by *Hepworth Acoustics*, Extrium noise maps and our own measurements would indicate that the fixed plant noise at the eastern boundary would not be perceptible at the nearest residential receptor.

This inaudible prediction is due to both distance attenuation of the plant noise and the prevailing noise climate with its combination of road traffic on Ashton New Road, trams and the constant flow of canal water.

A basic comparison between the Residual Noise Level, L_{Aeq} and Background Noise Level, L_{A90} taken at Location 2, 14 metres from the A/C Units between 13:32 to 13:47 on the 24th January and the Ambient or Specific Noise Level, L_{Aeq} , with the fixed plant operative again at Location 2 on the 31st January is detailed in table 22.

Location	2. Centre of Lock 8, Ashton Canal. 14 metres North East of A/C Units and 7 metres from nearest Tram Wall/Perimeter (NE). Closest first floor residential receptor approximately 30-35 metres North East from measurement location.		
Date, Time & Duration	13.32 – 13.47, 24 th January 2026 13.38 – 13.53. 31 st January 2026 15-Minutes Duration		
Measurement Parameter	L_{Aeq}	L_{Aeq}	L_{A90}
L _{Aeq} Residual Noise (Fixed Mechanical Plant NOT in operation) + L _{A90} Background Noise. (24 th January)	-	62.1dB(A)	61.3dB(A)
L _{Aeq} Specific Noise (Ambient Noise with Fixed Mechanical Plant in operation) + L _{A90} Background Noise. (31 st January)	62.7dB(A)	-	61.3dB(A)
L _{Aeq} Specific Noise (Predicted noise at the nearest first floor dwelling from the fixed mechanical plant when it is in operation)	47.5dB(A)	-	-

Table 22: Comparison noise data for the L_{Aeq} and L_{A90} taken at Location 2 with and without the fixed plant such as A/C Units and air source heat pump in operation plus the predicted noise level at nearest first floor dwelling façade resultant from plant noise.

The comparison table above indicates that the noise climate over distance would appear to not be raised with the fixed plant in operation. 14 metres from the A/C Units, air source heat pump etc., although perceptible at intervals, the sound pressure level of this plant is reduced over distance plus the added affect of “sound masking” from primarily road traffic noise, flowing water and intermittent trams.

The predicted plant noise level of 47.5dB(A) at the nearest residential receptor is well below the measured ambient, residual and background noise levels and should not affect the amenity of the first floor occupants of the dwellings. During the surveys, the first floor windows of some if not all the first floor dwellings had open windows.

Some machines or mechanical plant may produce a tone or impulse and to that a correction should be further added for acoustic features. *BS 4142:2014 Methods for rating and assessing industrial and commercial sound* provides a formula for addressing acoustic features,

Thus;

Within *BS 4142* section 9.2 Subjective Method, the Joint Nordic Method is quoted which provides a sliding scale for acoustic features which are tonal or impulsive based upon being just perceptible, clearly perceptible and highly perceptible. For Tones it is +2dB, +4dB and +6dB and for Impulses +3dB, +6dB and +9dB.

Acoustic character corrections were mentioned in item 2.6 of the *Hepworth Acoustics* report with the fixed mechanical plant, the air conditioning units in particular, do have a tonal quality to them, but even with a *Just* perceptible tone which has a correction of +2dB or a *Clearly* perceptible tone which has a correction of +4dB or a *Highly* perceptible tone which has a correction of +6dB, the rating level, L_{Ar} of the plant noise will not be greater than 5dB below existing background noise levels. With our Location 2 measurements taken on the Canal Lock which is the nearest

measurement location to the first floor dwellings, the existing background noise levels were +60dB(A) during the daytime with the predicted plant noise at the first floor façade being 47.5dB(A).

The *Hepworth Acoustics* report suggests that the measurement taken in the car park during the day had a range of 60-66dB(A) L_{Aeq} . This also reflects the daytime noise levels from road traffic on Extrium with the night-time on Extrium being slightly lower at 55-65dB(A) at night.

Night-time is 23:00 to 07:00 and it is assumed that it will be unlikely that the Women's First Team facilities will be occupied over these 8-hours. We understand that the Etihad Campus opens at 07:00 including the Joie Stadium and training academy and will close before 23:00 and so during the night-time the use of fixed mechanical plant will naturally be reduced.

Reflecting back on *BS 4142* and sound with acoustic characteristics, the following commentary should be considered.

The commentary on clause 11 states;

"The significance of sound of an industrial and/or commercial nature depends upon both the margin by which the rating level of the specific sound source exceeds the background sound level and the context in which the sound occurs. An effective assessment cannot be conducted without an understanding of the reason(s) for the assessment and the context in which the sound occurs/will occur. When making assessments and arriving at decisions, therefore, it is essential to place the sound in context."

The excess or deficit of the rating level over the background noise level is assessed against the following assessments.

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

This commentary was also stated in the *Hepworth Acoustics* report.

Noise break-in to dwellings that will affect an occupants amenity can be assessed against the following criteria for internal ambient noise levels.

The current *BS 8233:2014 Guidance on sound insulation and noise reduction for buildings* states suitable indoor ambient noise levels for dwellings which are detailed in table 23;

Sanctuary Acoustics Ltd

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living room	35dB $L_{Aeq, 16hour}$	-
Dining	Dining room/area	40dB $L_{Aeq, 16hour}$	-
Sleeping (daytime resting)	Bedroom	35dB $L_{Aeq, 16hour}$	30dB $L_{Aeq, 8hour}$

Table 23: BS 8233:2014 Indoor ambient noise levels for dwellings

To achieve the BS 8233:2014 criteria for sleeping it is recommended that internal ambient noise levels should achieve 30dB L_{Aeq} . In Living Rooms a 35dB L_{Aeq} is sought with Dining Rooms should have a minimum 40dB L_{Aeq} .

The *Noise Policy Statement for England (NPSE)* has stated the following criteria;

NOEL – No Observed Effect Level. This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to noise.

LOAEL – Lowest Observed Adverse Effect Level. This is the level above which adverse effects on health and quality of life can be detected. The NPSE expands these terms leading to the concept of a Significant Adverse Effect Level.

SOAEL – Significant Observed Adverse Effect Level. This is the level above which significant adverse effects on health and quality of life occur.

Table 24 details the applicable LOAEL and SOAEL.

Noise Source	Assessment Location	LOAEL	SOAEL	Times
General Environmental Noise and Road Traffic	Outdoor living space	50dB $L_{Aeq, 1hour}$	55dB $L_{Aeq, 1hour}$	Day 07:00 – 23:00
	Facade	50dB $L_{Aeq, 16hour}$	72dB $L_{Aeq, 16hour}$	Day 07:00 – 23:00
	Facade	45dB $L_{Aeq, 8hour}$	67dB $L_{Aeq, 8hour}$	Night 23:00 – 07:00
	Habitable Room	30dB $L_{Aeq, 8hour}$	40dB $L_{Aeq, 8hour}$ 45dB $L_{AFMax, 8hour}$	Night 23:00 – 07:00 (No more than 10-15 occurrences >45dB L_{AFMax} – WHO)
	Habitable Room	35dB $L_{Aeq, 16hour}$	45dB $L_{Aeq, 16hour}$	Day 07:00 – 23:00
Commercial noise or noise of industrial nature (not anonymous)	Façade	b/g – 10dB	b/g + 10dB	09:00 – 17:00 (approximate as work dependent up to 21:00)
	Façade	No change to ambient	Ambient 5dB L_{Aeq} increase	09:00 – 17:00 (approximate as work dependent up to 21:00)
	Outdoor living space	45dB $L_{Aeq, 1hour}$	50dB $L_{Aeq, 1hour}$	Day 07:00 – 23:00
	Habitable Room	35dB $L_{Aeq, 16hour}$	40dB $L_{Aeq, 16hour}$	Day 07:00 – 23:00

Table 24: NPSE Criteria

4. CONCLUSIONS

On comparing all the available noise results from the field measurements taken by *Hepworth Acoustics*, the noise measurements taken by us over two separate periods and those road traffic noise levels for Ashton New Road that are available on Extrium, the indications are that the fixed plant noise emanating at ground level close to the MCWFT facilities eastern boundary, which was derived primarily from the air handling units and the air source heat pump, it was found that these items of fixed plant will not have a detrimental effect on the amenity of the first floor occupants above the shops and take aways that affront Ashton New Road, which is approximately 50 metres to the north east of the fixed plant and the site boundary.

The background and ambient noise measurements taken by us were from locations that were closer to the noise sensitive receptors (first floor dwellings) than what the single *Hepworth Acoustics* measurement location had been. This report also discusses the other prevalent noise sources in the vicinity that are perceptible at both the noise sensitive receptors and the eastern boundary of the MCWFT facilities, namely the constant sound of flowing water through the Ashton Canal Lock 8 and intermittent trams that travel every few minutes between Ashton and Eccles, and not just traffic noise from Ashton New Road.

With the tramline and what appears to be a fenced off service area housing tramline sleepers between the canal and the noise sensitive receptors, it was not practical or possible to get a measuring location any closer to the receptors than what was undertaken from the canal. Measuring on the Ashton New Road is not practical and would cause an obstruction as would measuring next to the tramline.

Other specific noise measurements were conducted at distances that correspond to those distances used for sound pressure level measurements in the manufacturers literature.

To surmise;

- The typical day to day operations of the sites' fixed mechanical plant will not pose an adverse impact to the first floor occupants and when considering these other noise sources within the area such as road traffic, water flow through the canal lock, passing trams and other intermittent sources such as walkers & cyclists on the canal towpath and waterfowl, the cumulative effect of these sources is greater than the plant noise. Noise impact into the dwellings should also not be perceptible due the distance between source (fixed plant) and receiver (dwellings). As a rule of thumb with open windows in a façade, there is also a reduction in noise level. For example, if a noise source is generating 55dB outside, the internal noise level is likely to be 45dB showing a 10dB reduction. Therefore, with open windows, noise from the A/C Units in particular is unlikely to be perceptible within the first floor flats. It should also be noted during both surveys with and without the fixed plant in operation, many of the first floor windows to the side and rear of the first floor premises were open.

5. RECOMMENDATIONS

The findings of the noise surveys would indicate that the plant noise will not have an impact on the amenity of the occupants of the first floor flats.

Fixed mechanical plant noise, particularly from the A/C Units was perceptible on the canal towpath (Location 6 – 10 metres from the plant) but once you moved across the lock by 4 metres onto the centre of the lock (Location 2 – 14 metres from the plant) the plant noise reduced to negligible or intermittent sound due to the masking noise effect from flowing water and trams which was at a higher noise level.

Therefore, with noise levels from fixed plant already at sufficiently lower levels at the façade of the noise sensitive receptors, no further action is required in respect to further mitigation.

6. SUMMARY

Sanctuary Acoustics Ltd was asked by John Turner Construction Group Ltd to assess the existing background noise (L_{A90}) and the ambient noise (L_{Aeq}) environment on two separate visits to land adjacent to Ashton New Road and the Manchester City Academy Football Pitches, Manchester. It had been proposed to construct new indoor facilities on the edge of the existing Manchester City Football Group Campus for the Women's Football First Team. The new facilities building will contain changing rooms, physio/medical, hydrotherapy, kit room etc on the ground floor with further ancillary rooms on the first floor. The eastern/northeastern end of the site utilises the existing brick building which was formerly used as a bank that stood on this end of the site, with the eastern boundary abutting the Ashton Canal. Beyond the canal is the tram line with regular trams between Ashton and Eccles via Media City. The new building also contains on the first floor a kitchen, refectory, WC's plus offices and meeting rooms. Subsequently there is a need for ventilation, heating, extraction etc., throughout the building with fixed mechanical plant mounted on the upper roof and lower roof of which both areas are encircled with metal fencing or screening. At ground level however, it is further fixed plant which abuts the eastern boundary and the Ashton Canal beyond. This fixed plant notably includes air conditioning units and an air source heat pump. With the Ashton Canal running parallel to the eastern/northeastern boundary, beyond it is the tramline and in turn the tramline abuts shops and food takeaways that affront Ashton New Road to the east. Above these ground floor commercial premises are flats at first floor level and it is these flats that have been identified as the nearest residential receptors to the site.

The planning officer has further relayed the following information;

- *Condition 25a (Noise Levels of External Plant Equipment) - The submitted technical documents are inadequate in order to satisfy part a of this condition.*
- *Reference is required to Hepworth Acoustics Noise Impact Assessment, Report No: P23-371-R01v3, dated December 2023, submitted under approval 138987/FO/2024. It should be demonstrated that the proposed plant noise levels are in accordance with the design limits within that report. Due to the above outstanding issues we cannot currently recommend discharge of the condition.*
- *Condition 26 (Air Source Heat Pumps) - Comments as per Condition 25a – Need to update acoustic report*

For the purpose of assessment, reference in this noise report has therefore been made to *BS 4142:2014 – Methods for rating and assessing industrial and commercial sound* with secondary reference to *BS 8233:2014 – Guidance on sound insulation and noise reduction for buildings*.

To summarise:

1. Noise measurements have been undertaken at the Manchester City Women's First Team (MCWFT) facilities on two separate occasions. The first survey measured background (L_{A90}) and residual (L_{Aeq}) noise levels with the fixed mechanical plant (Air Source Heat Pump, Air Conditioning Units etc.) inoperable while the second noise survey was conducted to measure the ambient and specific noise levels (L_{Aeq}) in the vicinity and at set distances from the fixed plant with the said fixed plant operating. Reference was also

made to the noise levels detailed in the *Hepworth Acoustics* report reference *P23-371-RO1v3*.

2. An assessment of contributing noise sources in the vicinity was made with noise measurements of 15-minute and 5-minutes duration to assess the residual (L_{Aeq}), background (L_{A90}), ambient (L_{Aeq}) and specific (L_{Aeq}) noise levels on and off site. The external noise measurements were conducted in line with *BS 4142:2014 Methods for rating and assessing industrial and commercial sound*. 15-minute measurements were conducted at Location 1 from 13:00 on the 24th January to 12:15 on the 25th January and again from 14:00 on the 30th January to 12:45 on the 31st January. 15-minute measurements at Location 2 were conducted from 13:32 to 13:47 and 13:48 to 14:03 on the 24th January and again from 13:38 to 13:53 on the 31st January. Location 1 was located on the lower roof and Location 2 was located 14 metres from the A/C Units in the centre of the Ashton Canal Lock 8. Locations 3 to 6 were specific noise measurements conducted at 5-minutes and 15-minutes measurement intervals to measure the noise from fixed plant in line with manufactures own literature which states sound pressure levels at set distances. Location 3 is a 5-minutes measurement taken 10 metres to the south east of the Air Source Heat Pump. Location 4 was two 5-minute measurements taken at 3 metres to the west of the Air Conditioning Units. Location 5 is a 5-minutes measurement taken 2 metres to the east of the Air Conditioning Units while Location 6 was taken at 10 metres from the Air Source Heat Pump and the Air Conditioning Units to the east on the canal towpath. The specific noise measurements at Locations 3 to 6 were all taken on the 30th January 2026.
3. The *Hepworth Acoustics* report highlighted road traffic noise on Ashton New Road as the dominant noise source from its measurement location in the car park to the west of the original bank building. Both *Hepworth's* and ourselves have identified the same nearest noise sensitive receptors as first floor dwellings above shops and takeaways to the north east of the site boundary on premises that affront Ashton New Road. Our noise measurements however took place closer to these noise sensitive receptors either side of the MCWFT site's north eastern boundary fence. We have also identified other dominant noise sources in addition to road traffic which is the constant flow of water through the rear of the Ashton Canal Lock 8 and intermittent passing trams running between Ashton and Eccles approximately 18-hours a day between 06:00 and 00:00. The Manchester City Football site with its academy, Joie Stadium and new women's football facility will open daily from 07:00 in the morning but it is expected by the time night-time commences at 23:00, the site will have closed with either no or reduced fixed plant operating.
4. The daytime L_{Aeq} range in the *Hepworth Acoustics* report is 60-66dB(A), our measurements at Location 2 on the Canal Lock (14m) and Location 6 on the Canal Towpath (10m) with noise from road traffic, free flowing canal water, intermittent trams and fixed mechanical plant noise were above 60dB(A) (L_{Aeq} & L_{A90}). Thirdly, Extrim Noise Maps have also been referenced which shows daytime L_{Aeq} at the rear of the dwellings to be 60-65dB(A). The rear façade on the nearest first floor residential receptor is approximately 50 metres from the air conditioning units. With a specific/ambient noise measurement (Location 6) at 10 metres from the A/C Units and air source heat pump and the receptors a further 40 metres away making a total distance of 50 metres, the predicted fixed plant noise level at the façade of the nearest residential receptor is calculated to be 47.5dB(A). This predicted façade noise level is approximately 15dB(A) below ambient and background noise levels. With the A/C Units emanating noise with a tonal quality, even with a worst case scenario of the tone being *Highly Perceptible*, the +6dB correction factor

would still see the rating level of the fixed plant being well below the 5dB below background noise level (L_{A90}) as required under Part (a) of Condition 25. It should be noted however that in the centre of the canal lock (Location 2 14 metres from A/C Units), the fixed plant noise was only *Just Perceptible* which carries just a +2dB correction. As already discussed, over distance with both distance attenuation and sound masking from flowing water, road traffic and passing trams, the fixed plant noise will be inaudible at the nearest residential façade.

5. Based upon the noise levels highlighted in the *Hepworth Acoustics* Report and the noise levels measured across two separate periods Saturday(24th)/Sunday (25th) and Friday(30th)/Saturday(31st) together with references made to Extrium Noise Maps for further confirmation of daytime and night-time L_{Aeq} on Ashton New Road, noise emanating from the fixed mechanical plant, particularly the Air Conditioning Units and the Air Source Heat Pump would not cause adverse noise effects to nearby dwellings and so protection of amenity for occupants will be maintained from plant noise. It should also be noted that neither survey was conducted when the Manchester City Women's Team was playing at Joie Stadium and the men's team who play further along Ashton New Road at the Etihad Stadium were also not playing during either survey. Spectators at both stadiums are audible off-site when cheering during games and so these times were obviously avoided so as not to obtain spurious results.
6. With protection of amenity from fixed plant noise for nearby occupants confirmed, there are no recommendations for mitigation as the fixed plant noise levels are within criteria requirements as stated in the earlier *Hepworth Acoustics* Report.

7. APPENDIX A

Acoustics Glossary of Terms

$L_{Aeq,T}$ – Equivalent continuous sound pressure level. This is the A-weighted sound pressure level in decibels (dB) of a continuous, steady sound that within a specified time interval, T, has the same mean squared sound pressure as a sound that varies with time.

L_{A10} – The A-weighted mean square sound pressure level that is exceeded for 10% of the time.

L_{A90} – The A-weighted mean square sound pressure level that is exceeded for 90% of the time. Referred to as the background noise level.

L_{Amin} – The lowest A-weighted noise level recorded during a noise event.

L_{Amax} – The highest A-weighted noise level recorded during a noise event.

R_w – The weighted sound reduction index is a single number quantity which characterises the airborne sound insulating properties of a material or building element over a range of frequencies.

C_{tr} – The spectrum adaptation term added to a sound insulation quantity such as R_w to compensate for particular sound spectra such as urban road traffic noise.

$D_{n,e,w}$ – The weighted element normalised level difference is a single number quantity which characterises the airborne sound insulating properties of a small building element over a range of frequencies.

$D_{nT,w}$ – The standardised level difference is a single number quantity which characterises the airborne sound insulation between rooms over a range of frequencies.

Specific Noise Source – The noise source under investigation for assessing the likelihood of complaints.

Specific Noise Level, $L_{Aeq,Tr}$ – The equivalent continuous A-weighted sound pressure level at the assessment position produced by the specific noise source over a given reference time interval.

Rating Level, $L_{Ar,Tr}$ – The specific noise level plus any adjustment for the characteristic features of the noise.

Ambient Noise – Totally encompassing sound in a given situation at a given time usually composed of sound from many sources near and far.

Residual Noise – The ambient noise remaining at a given position in a given situation when the specific noise source is suppressed to such a degree that it does not contribute to the ambient noise.

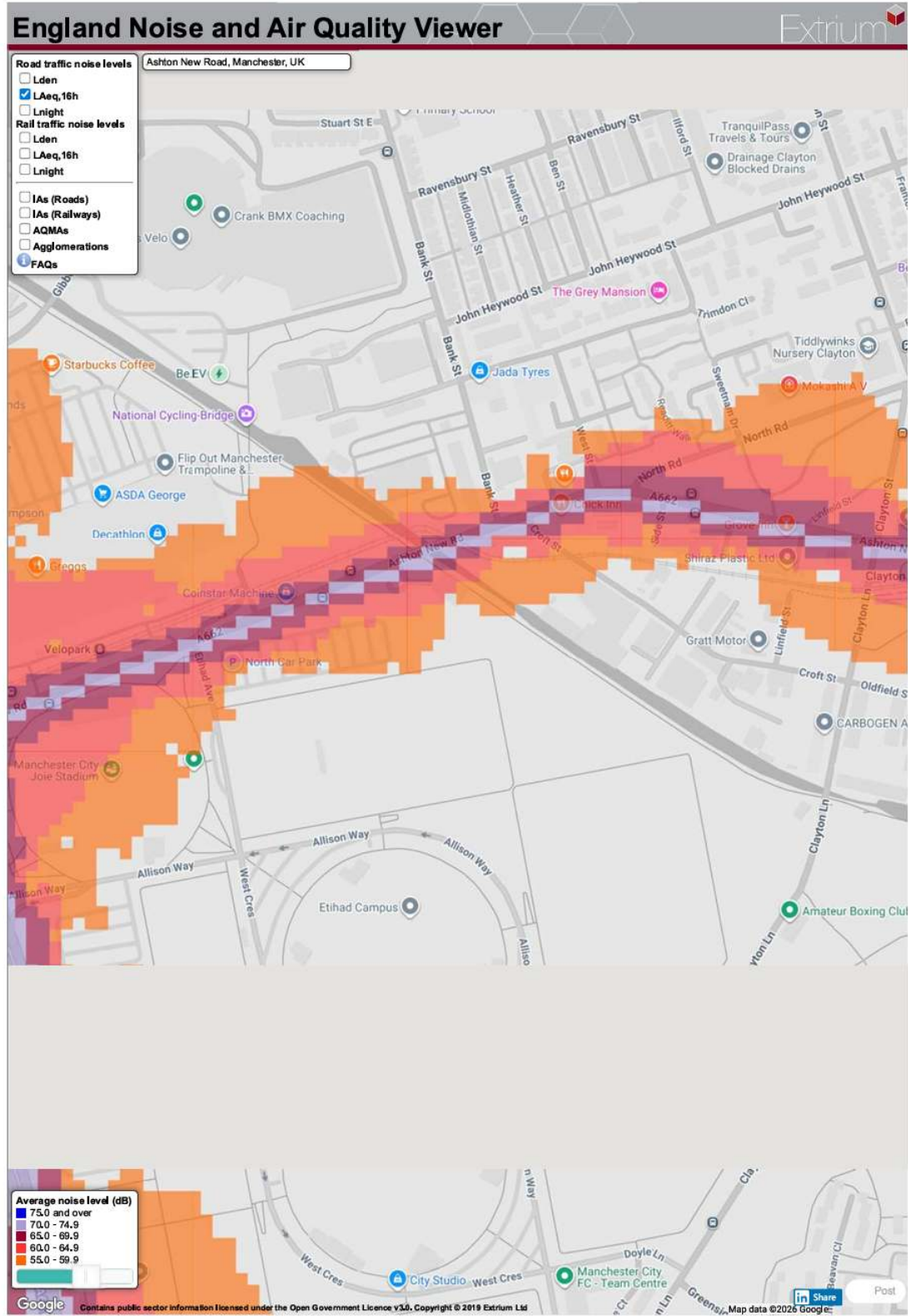
Residual Noise Level, $L_{Aeq,T}$ – The equivalent continuous A-weighted sound pressure level of the residual noise.

8. APPENDIX B

Extrium Noise Maps – Daytime 16-Hour LAeq

28/01/2026, 11:08

Extrium > England Noise and Air Quality Viewer

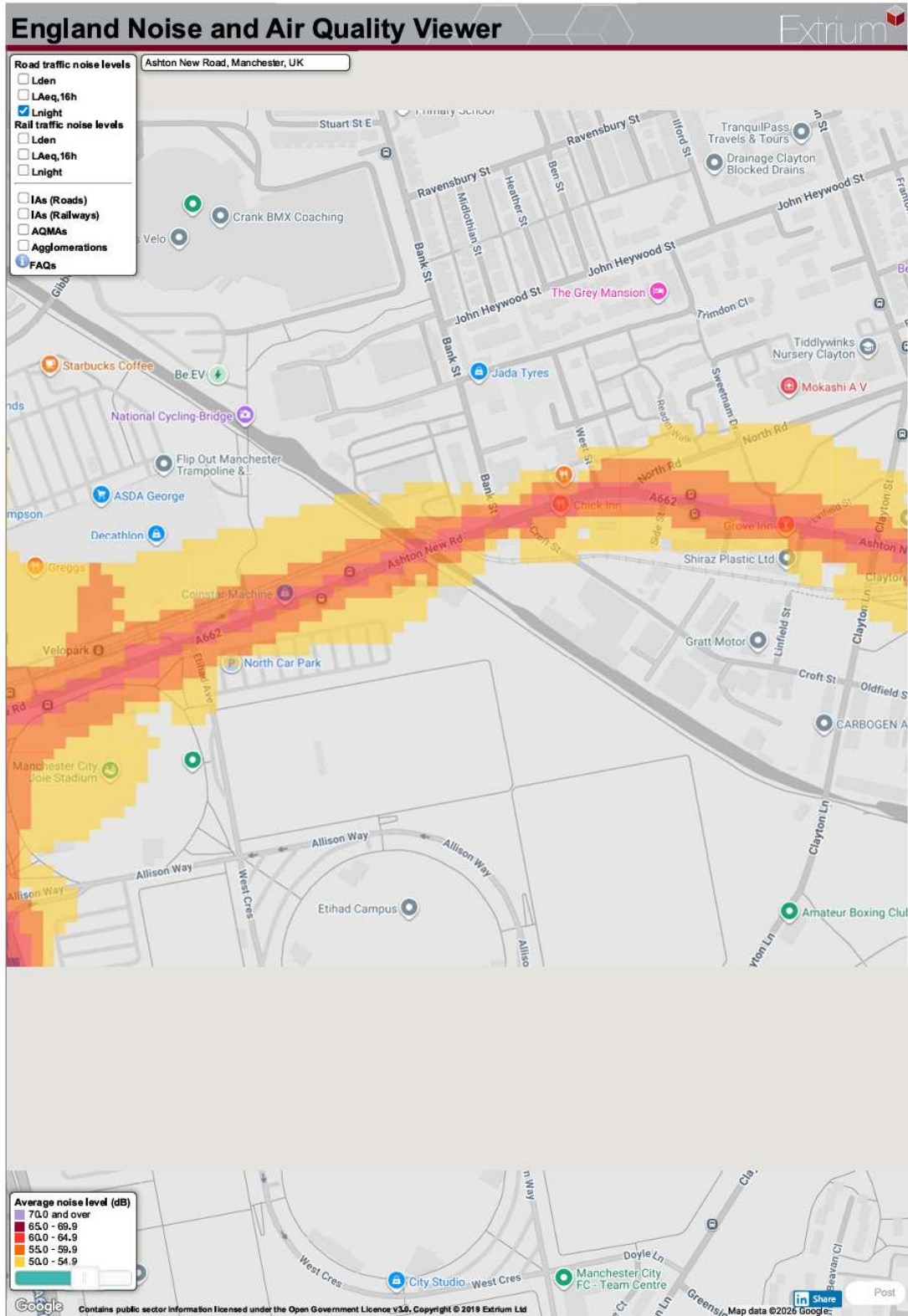


1/2

Extrium Noise Maps – Night-time 8-Hour LAeq (Lnight)

28/01/2026, 11:09

Extrium > England Noise and Air Quality Viewer



1/2