



NOISE ASSESSMENT

on behalf of

AMP ENERGY SERVICES LTD

for the site at

**WYLEX WORKS, SHARSTON INDUSTRIAL
ESTATE, WYTHENSHAW, MANCHESTER
M22 4RA**

REPORT DATE: 19 AUGUST 2021

REPORT NUMBER: 102630

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Summary

This report provides evidence to discharge condition 3(a) of planning reference 12956/FO/2021 issued by Manchester City Council. .

The consented development is for a biomass boiler within a plant room and an external screw feed auger for the loading of fuel into the storage silo. Condition 3(a) of the consent requires that before development commences a scheme of mitigation measures to acoustically insulate externally located plant and equipment to ensure that the specific sound level from the plant shall be at a maximum 5dB below the existing background sound level, shall be submitted to and approved by the Local Planning Authority before development commences.

Noise measurements have been undertaken to assess existing background sound levels and predictions of the external plant sound levels inclusive of the proposed plant room have been undertaken so a comparison can be made. The comparison shows that for all sensitive receptors the specific sound level from the biomass boiler in the plant room and the externally located screw feed auger is at least 5dB below the existing background sound level. Based on this assessment no additional mitigation measures are required.

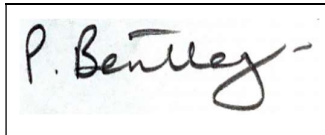
The information provided within this report provides sufficient evidence to discharge planning condition 3(a) of consent 12956/FO/2021.

Record of changes

Prepared By Paul Bentley MIOA

Reviewed By Jo Miller MIOA

Signed



Signed



Date

19 August 2021

Date

19 August 2021

Version	Date	Change	Initials
1	19 August 2021		PB

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1 Introduction

- 1.1 Miller Goodall Ltd has, on behalf of AMP Energy Services Ltd undertaken a noise assessment for a site at Wylex Works, Sharston Industrial Estate, Wythenshawe, Manchester M22 4RA.
- 1.2 The site has planning approval ref 12956/FO/2021 and the conditions relating to noise are detailed below:

Condition 3

a) Externally mounted ancillary plant, equipment and servicing shall be selected and/or acoustically treated in accordance with a scheme designed so as to achieve a rating level of 5dB (L_{Aeq}) below the typical background (L_{A90}) level at the nearest noise sensitive location. Prior to commencement of the use hereby approved the scheme shall be submitted to and approved in writing by the City Council as local planning authority in order to secure a reduction in the level of noise emanating from the site.

b) Prior to the first use of the development a verification report shall be submitted to and approved in writing by the City Council as local planning authority to validate that the work undertaken throughout the development conforms to the recommendations and requirements in the approved acoustic report. The report shall also undertake post completion testing to confirm that the noise criteria have been met. Any instances of non-conformity with the recommendations in the report shall be detailed along with any measures required to ensure compliance with the agreed noise criteria.

- 1.3 This assessment provides assessment of the plant items proposed for comparison with the target criteria specified in Part A of the condition. The verification survey in Part B will follow at a later date once commissioning has taken place to ensure that the assumptions regarding sound levels and any proposed mitigation in this report are valid.

2 Site Description and Consented Development

- 2.1 The site is located at Wylex Works, Sharston Industrial Estate, Wythenshawe, Manchester M22 4RA. The site location plan & application area and general arrangement plan and elevation drawings are shown in Appendix 1.
- 2.2 The approved biomass boiler plant room, fuel feedstock silo and fuel feed auger are located towards the centre of the site surrounded by existing site buildings. The nearest sensitive residential receptor is located on Longley Lane to the north east of the application area. There are also commercial offices and warehousing located directly opposite the site on Sharston Road
- 2.3 The biomass boiler will be fed using fuel pellets or woodchip via a screw auger that transfers the fuel from the storage silo into the boiler. The boiler itself is located in a purpose-built plant room. The plant room construction is detailed to be uninsulated plastisol steel sheet cladding (0.7mm thick) attached to structural steel frame comprising the walls and roof.
- 2.4 The proposed boiler operational hours are expected to be normal daytime working hours, however this assessment includes for the night-time periods as there is no control on the operational hours of the plant.

3 Local Authority Consultation

- 3.1 Rebecca Twigg at Manchester City Council was consulted in respect of the methodology used in this assessment¹. It was agreed that measurement of the background sound level to set the target limits would be based on two positions, one for the residential housing and one for the commercial offices directly opposite.

¹ Email to Rebecca Twigg 5th August 2021

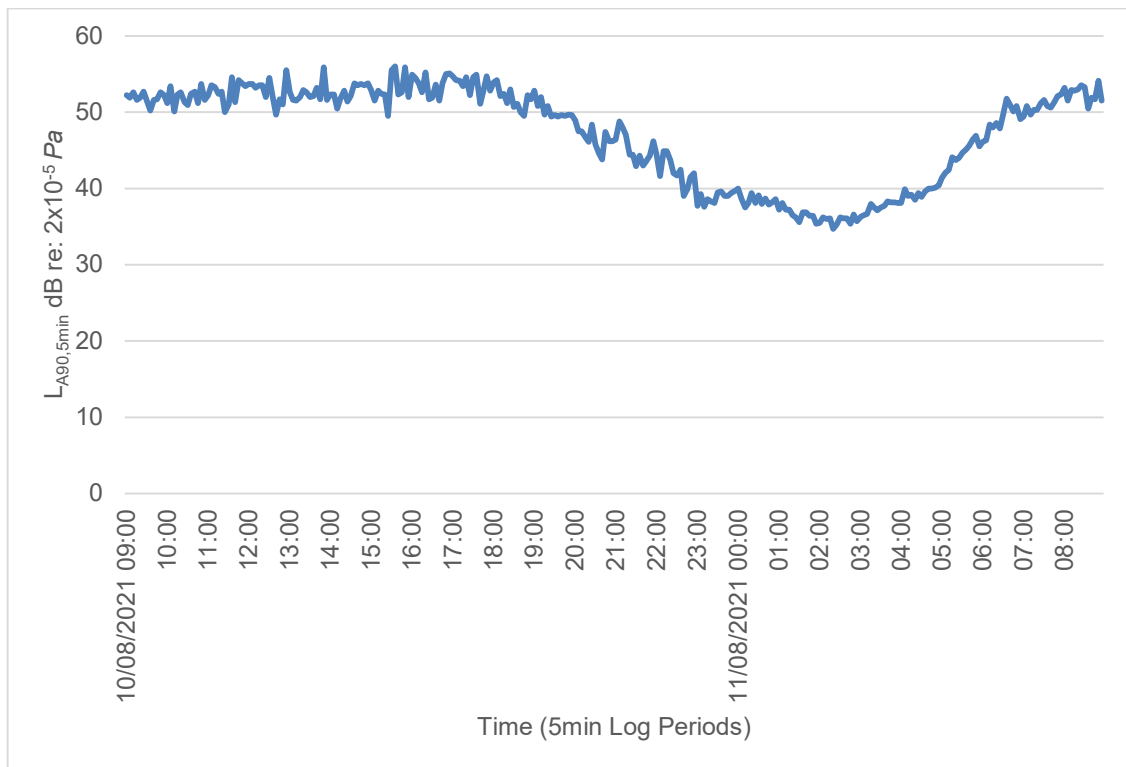
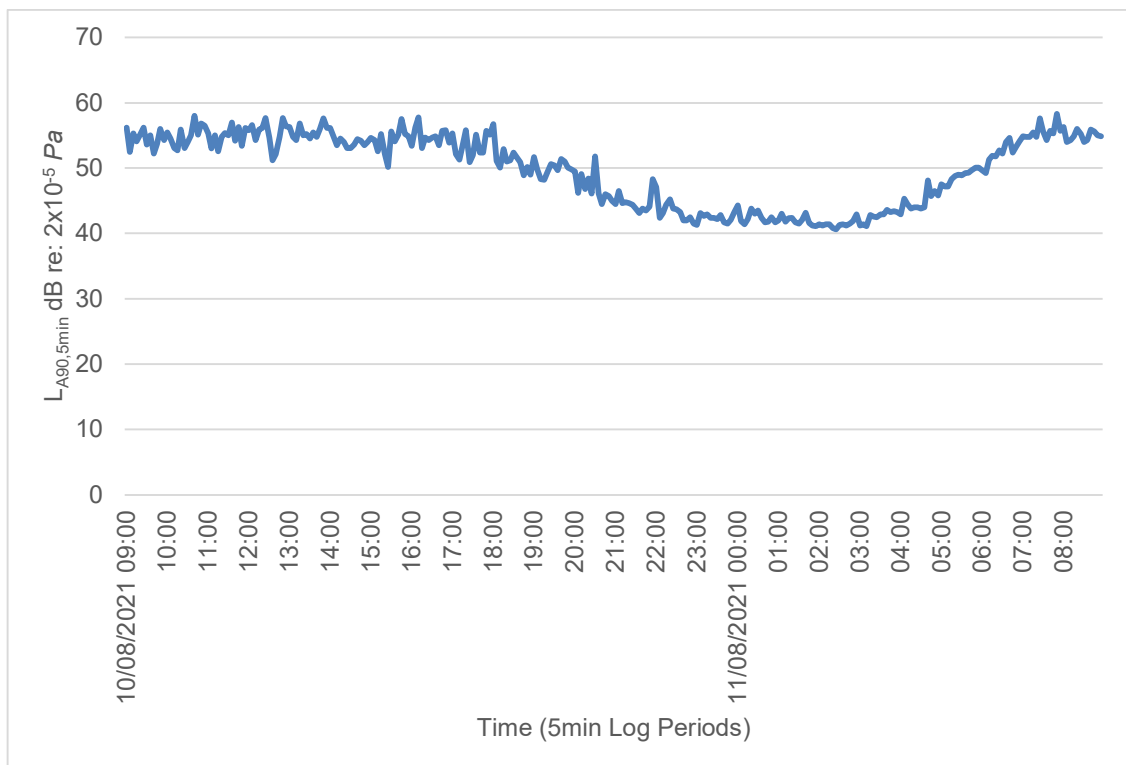
4 Environmental Noise Survey

- 4.1.1 Measurements of the existing environmental noise sound levels were made at MP1 and MP2 from 09:00am on the 10th August to 09:00am on the 11th August 2021. The survey locations were both located on the boundary of Wylex Works site and are considered representative of the nearest sensitive receptors. Figure 1 shows the location of the measurement. Full details of the survey are presented in Appendix 2.

Figure 1: Monitoring Location Plan



- 4.1.2 Figure 2 and 3 present the broadband $L_{A90,5min}$ sound levels for the survey period.
- 4.1.3 Based on the survey data, the typical night-time $L_{A90,5min}$ was 38dB and the typical daytime $L_{A90,5min}$ was 52dB. The target sound levels that comply with the requirements of the planning condition are 33dB $L_{Aeq,t}$ in the night-time and 47dB $L_{Aeq,t}$ for the daytime period

Figure 2: MP1 Longley Lane Broadband $L_{A90,5min}$ dB Sound Level**Figure 3: MP2 Sharston Road Lane Broadband $L_{A90,5min}$ dB Sound Level**

5 CadnaA Modelling

5.1 Noise Model Parameters

- 5.1.1 The model has predicted the sound level from the approved biomass plant housed within the plant room and noise from the screw auger fuel feed. Table 1 presents the source sound power levels used in CadnaA. Octave band data is not available from the manufacturers of the equipment so all predictions are broadband.

Table 1: Source Sound Levels

Plant Item	Data Source	Source Sound Level	Comments
Biomass boiler	Manufacturer's datasheet (see appendix 4)	96dB L_i	Specified as an internal level within the plant room breaking out through external walls and roof.
Screw auger feed including motors and screw auger ²	Manufacturer's data (see appendix 4)	78dB L_{WA}	To achieve 70dBA L_p at 1m distance

- 5.1.2 The plant room that houses the boiler plant has been allowed for in the predictions. The sound reduction index for the walls, roof and access doors are assumed to be give a weighted sound reduction of no greater than 20dB³.
- 5.1.3 Topography for the surrounding land and building heights have been taken from the Environment Agency 2017 LIDAR dataset.
- 5.1.4 All buildings have been set to reflective and two orders of reflection have been set in the model. The ground absorption has been set to 0.1 to account for hard surfaces.

5.2 Noise Model Prediction Results

- 5.2.1 The predicted sound level is shown in Figure A3.1 and A3.2 in Appendix 3. These show the predicted sound level from all plant operating continuously at a height of 1.5m and 4.5m.
- 5.2.2 For the residential receptor on Longley Lane, Figure A3.1 and A3.2 at 1.5m and 4.5m show that the predicted sound level would be 30dB $L_{Aeq,t}$ at both grid heights at the façade of the closest residential dwelling.

² It is anticipated the screw auger fuel feed will not run each day and deliveries of fuel will take place once every 2-3 weeks and last no more than 1hr and will be made via small tipper van.

³ Based on INSUL prediction for 0.7mm DimondDek 400 roof cladding material.

- 5.2.3 For the office receptor on Sharston Road, Figure A3.2 at 4.5m shows the predicted sound level at the office location at 4.5m grid height at the façade of the office is 47dB $L_{Aeq,t}$.

6 Assessment

- 6.1.1 Table 2 presents the assessment of the predicted sound level against the background measured $L_{A90,t}$ sound level. A comparison of the predicted sound level at 4.5m at the offices with the night-time target has not been presented as the offices are not likely to be occupied during the night-time period.

Table 2: Impact Assessment

Receptor Location	Predicted Sound Level $L_{Aeq,t}$ dB ⁴	Typical Background Sound Level $L_{A90,t}$		Comparison of Predicted Level vs Background Sound Level		Compliant with LA Criteria of 5dB Less than $L_{A90,t}$ (Yes/No)	
		Day	Night	Day	Night	Day	Night
Commercial offices on Sharston Road at 4.5m grid height	47	52	38	-5	NA	Yes	NA
Residential dwellings on Longley Lane 1.5m grid height	30	52	38	-22	-8	Yes	Yes
Residential dwellings on Longley Lane 4.5m grid height	30	52	38	-22	-8	Yes	Yes

- 6.1.2 Table 4 shows that the target requirement of 5dB below the typical background sound level has been complied with and no additional mitigation is required.

⁴ No acoustic features have been allowed for in the assessment as it expected the plant is likely to be inaudible at the receptor location.

7 Conclusions

- 7.1.1 Conditional planning consent has been granted for a residential development at Wylex Works, Sharston Industrial Estate, Wythenshawe, Manchester M22 4RA, planning reference 12956/FO/2021. Conditions 3(a) has been addressed as part of this assessment.
- 7.1.2 Façade levels have been predicted for to 1.5m and 4.5m at the nearest sensitive property to compare against the target criteria which are based on the typical daytime and night-time background sound level.
- 7.1.3 The predicted sound level when compared to the typical background sound level shows that the target criteria of 5dB below the background has been complied with. Therefore, no additional mitigation works are required.
- 7.1.4 Once the site has been commissioned measurements of the actual on-site sound levels will be required to discharge Part B of the planning condition. If sound levels are found to be higher than what has been assumed for in the modelling additional mitigation works will be required.

8 Health and Safety Information

The Construction (Design and Management) Regulations (CDM 2015) are the main set of regulations for managing the health, safety and welfare of construction projects. CDM 2015 applies to all building and construction work and includes new build, demolition, refurbishment, extensions, conversions, repair and maintenance in order to reduce injury and ill health.

Under the regulation we are Designers. As a Designer, our decisions can affect the health and safety of workers and others who will construct, maintain, repair, clean, refurbish and eventually demolish or remove the building or structure, as well as those who will use it as a completed workplace. Taking risks arising from the design into account can positively affect the project and make it easier for these risks to be managed by contractors and those who will maintain or use the structure. Our designs must contribute to the safe delivery of a project without risks to health.

As Designers we must:

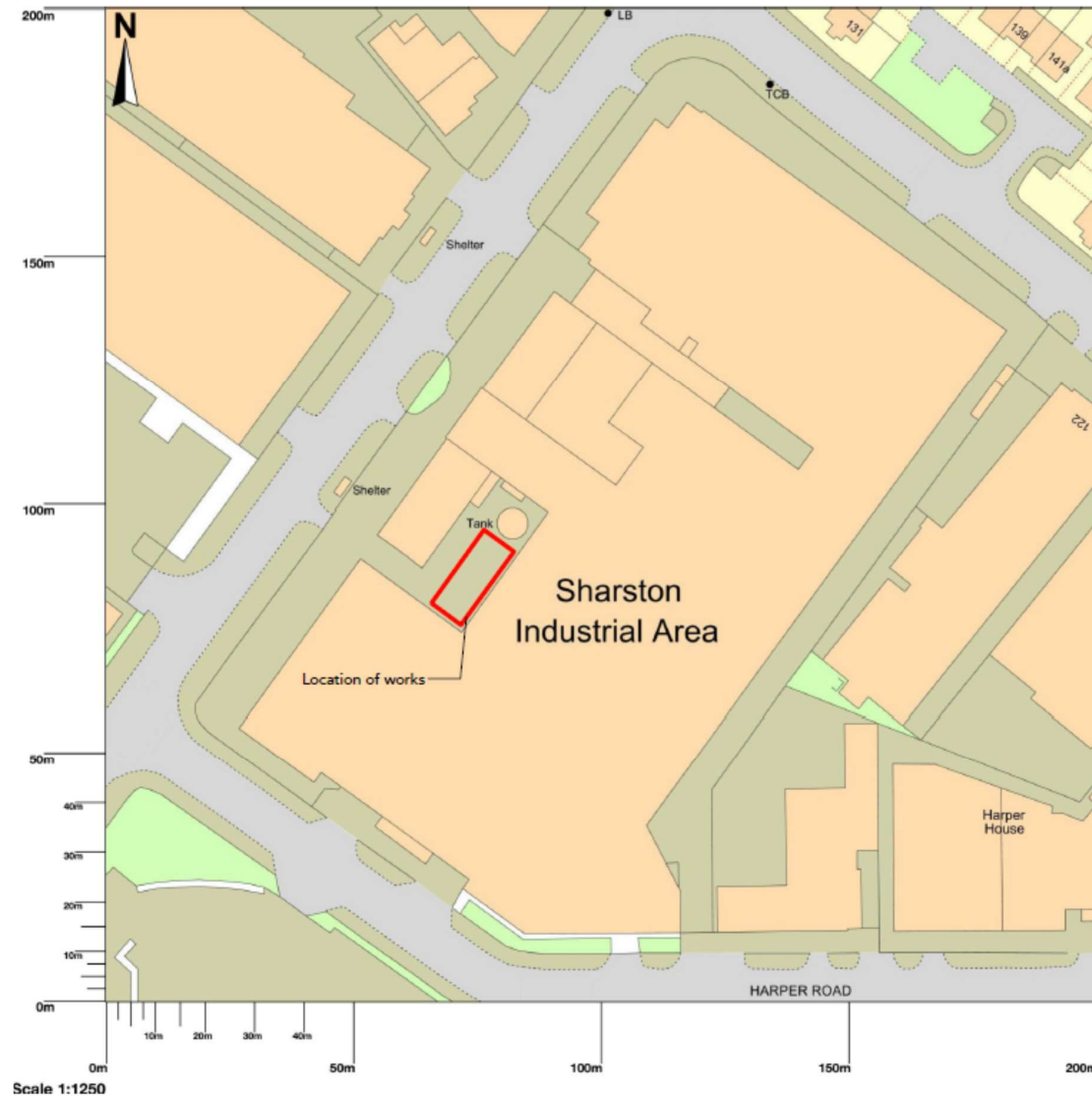
- understand and be aware of significant risks that workers and users can be exposed to and how these can arise from our design decisions;
- have the right skills, knowledge, and experience and be adequately resourced to address the health and safety issues likely to be involved in the design;
- check that Clients are aware of their duties;
- co-operate with others who have responsibilities, in particular the Principal Designer;
- take into account the general principles of prevention when carrying out our design work;
- provide information about the risks arising from our design;
- co-ordinate our work with that of others in order to improve the way in which risks are managed and controlled.

Our designer's risk assessment for this project and the mitigation work we have recommended is shown in Appendix 4.

APPENDICES

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Appendix 1: Site Location, Layout and Elevation Plans



**UK
Planning
Maps**



**Electrium Sales Ltd, Sharston Road,
Wythenshawe, Manchester, M22 4RA**

Map area bounded by: 383149,389233 383349,389433.
Produced on 01 March 2021 from the OS National Geographic Database. Reproduction in whole or part is prohibited without the prior permission of Ordnance Survey.
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Supplied by UKPlanningMaps.com a licensed OS partner (100054135).
Unique plan reference: p4buk/583980/791709

XL PLANNING LTD		
XL Planning Ltd, 1A Fore Street, Cullumpton, Devon EX15 1JW T: 01884 38962 E: dnorman@xlplanning.co.uk		
Project Name Electrium Sales Ltd Sharston Road, Wythenshawe		
Drawing Title Site Location Map		
Scale 1 : 2500 Size A4 Drawn DC		
Job No. 2106	Drawing No. 0002	Rev. -

Plant Room

Sections manufactured from Z45 high tensile, pre-galvanised, high yield, cold rolled steel conforming to Industrial Building Standard BS5950 Part 5, and wind Calculations BS6399 part 2.

Roof

Roof Cladding Non insulated Plastisol 0.7 with Anti Con
Number of Roof lights per bay 0
Roof Cladding Colour Anthracite RAL7016
Rain Water System PVC - Black BS00E53

Left Gable

Left Gable Cladding Non insulated Plastisol 0.5 without Anti Con
Left Gable Cladding Colour Anthracite RAL7016
Left Gable Flashing Colour Anthracite RAL7016

Right Gable

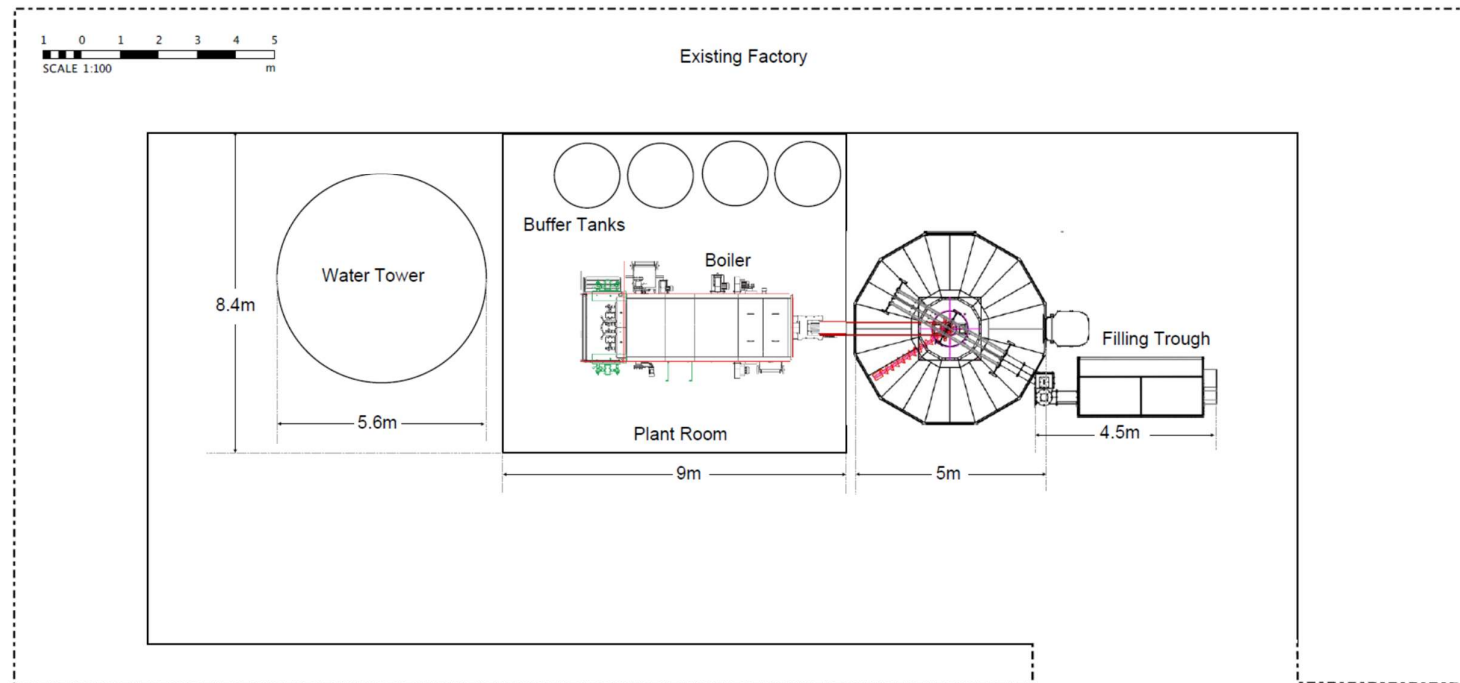
Right Gable Cladding Non insulated Plastisol 0.5 without Anti Con
Right Gable Cladding Colour Anthracite RAL7016
Right Gable Flashing Colour Anthracite RAL7016

Front Side Elevation

Front Side Elevation Cladding Non insulated Plastisol 0.5 without Anti Con
Front Side Elevation Cladding Colour Anthracite RAL7016
Front Side Elevation Flashing Colour Anthracite RAL7016

Rear Side Elevation

Rear Side Elevation Cladding Non insulated Plastisol 0.5 without Anti Con
Rear Side Elevation Cladding Colour Anthracite RAL7016
Rear Side Elevation Flashing Colour Anthracite RAL7016



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DATE DRAWN	22/12/2020
DRAWN BY	R Raymond
SCALE (A3)	1:100
#	

AFS Biomass

Title: Electrium Sharston Plan

Drawing No.
ES1430-1

Plant Room

Sections manufactured from Z45 high tensile, pre-galvanised, high yield, cold rolled steel conforming to Industrial Building Standard BS5950 Part 5, and wind Calculations BS6399 part 2.

Roof

Roof Cladding Non insulated Plastisol 0.7 with Anti Con
Number of Roof lights per bay 0
Roof Cladding Colour Anthracite RAL7016
Rain Water System PVC - Black BS00E53

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Right Gable

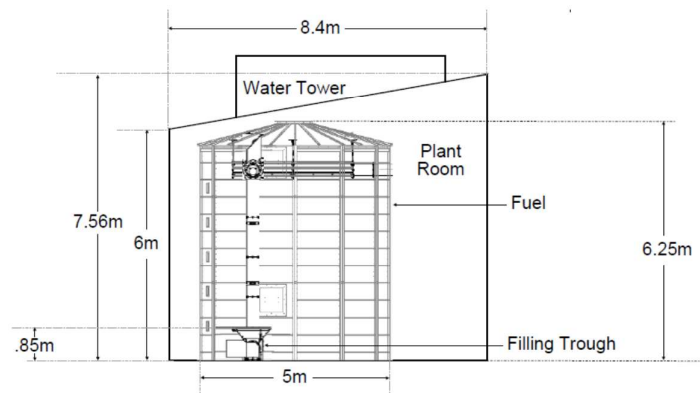
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Rear Side Elevation

Rear Side Elevation Cladding Non insulated Plastisol 0.5 without Anti Con
Rear Side Elevation Cladding Colour Anthracite RAL7016
Rear Side Elevation Flashing Colour Anthracite RAL7016



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DATE DRAWN

22/12/2020

DRAWN BY

R Raymond

SCALE (A3)

1:100

#

#



Title:

Electrium Sharston
North East End Elevation

Drawing No.

ES1430-3

Plant Room

Sections manufactured from Z45 high tensile, pre-galvanised, high yield, cold rolled steel conforming to Industrial Building Standard BS5950 Part 5, and wind Calculations BS6399 part 2.

Roof

Roof Cladding Non insulated Plastisol 0.7 with Anti Con
Number of Roof lights per bay 0
Roof Cladding Colour Anthracite RAL7016
Rain Water System PVC - Black BS00E3

Left Gable

Left Gable Cladding Non insulated Plastisol 0.5 without Anti Con
Left Gable Cladding Colour Anthracite RAL7016
Left Gable Flashing Colour Anthracite RAL7016

Right Gable

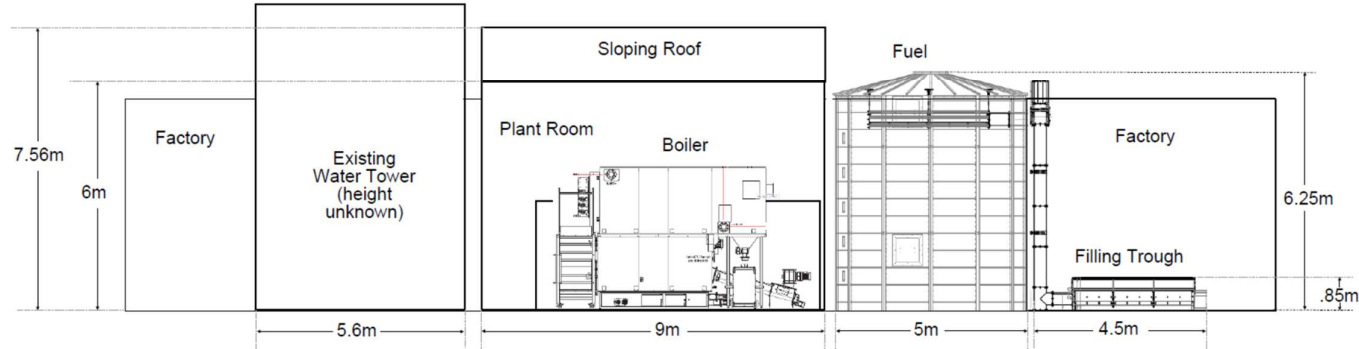
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Front Side Elevation Cladding Colour Anthracite RAL7016
Front Side Elevation Flashing Colour Anthracite RAL7016

Rear Side Elevation

Rear Side Elevation Cladding Non insulated Plastisol 0.5 without Anti Con
Rear Side Elevation Cladding Colour Anthracite RAL7016
Rear Side Elevation Flashing Colour Anthracite RAL7016



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DRAWN BY R Raymond
SCALE (A3) 1:100
#

AFS Biomass

Title:
Electrium Sharston
North West Side Elevation

Drawing No.
ES1430-2

Appendix 2: Noise Monitoring

Measurements of Existing Noise Sources

8.1.1 Noise measurements were undertaken at locations representative of the background sound levels at the residential dwellings on Longley Lane and the commercial offices on Sharston Road in accordance with BS 7445-1: 2003⁵ by Paul Bentley of Miller Goodall Ltd. The calibration of the sound level meter was checked before and after measurements with negligible deviation (<0.1 dB). Details of the equipment used are shown in Table A2.1, below.

Table A2.1: Noise monitoring equipment

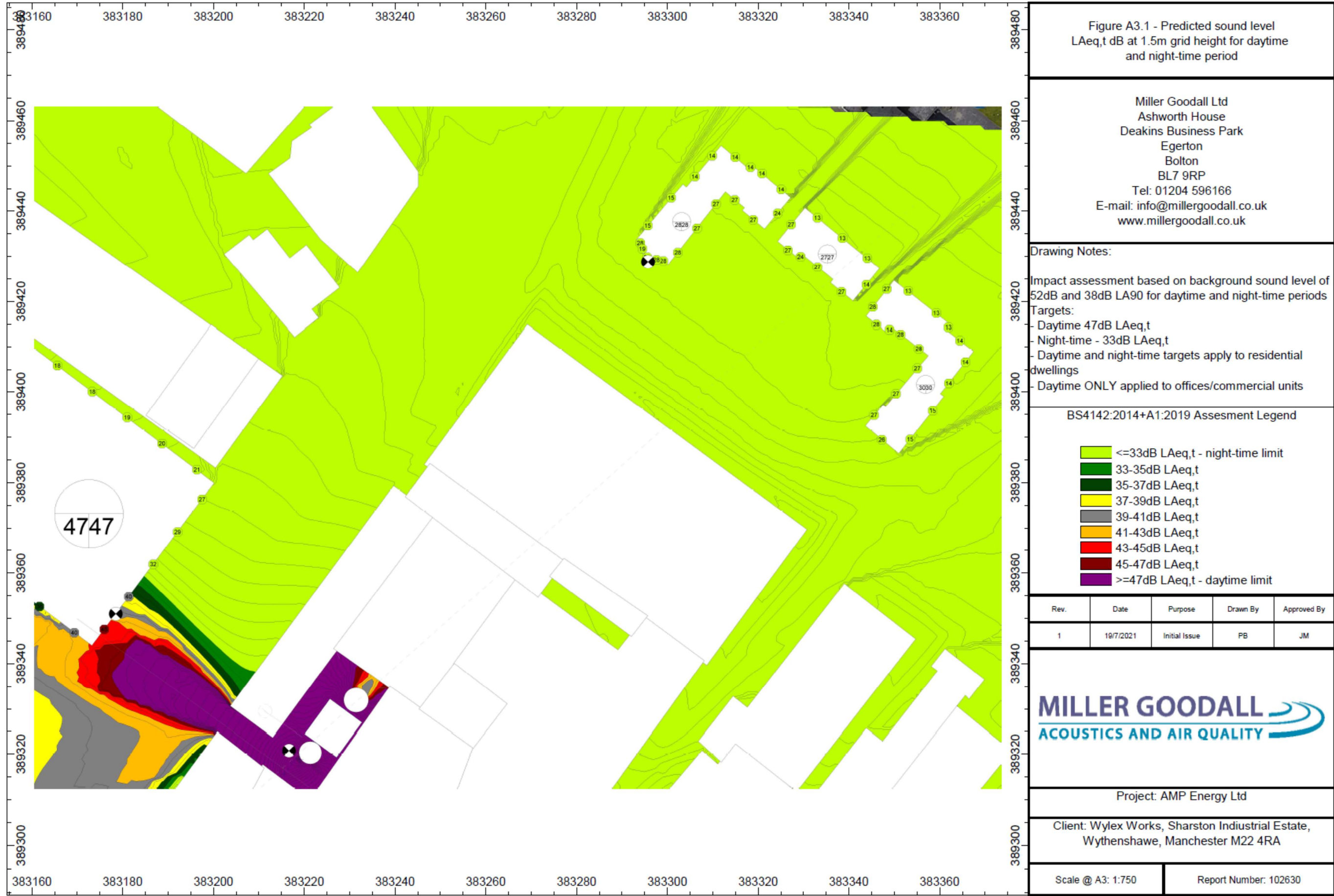
Monitoring Location	Equipment Description	Type Number	Manufacturer	Serial No.	Date Calibrated	Calibration Certification Number
MP1	Class 1[4],[5] Integrating Real Time 1/3 Octave Sound Analyser	NOR 140	Norsonic	1406017	22/10/2019	U33164
	Microphone	NOR 1225	Norsonic	358159	22/10/2019	33163
MP2	Class 1[1],[2] Integrating Real Time 1/3 Octave Sound Analyser	NOR 140	Norsonic	1407510	13/12/2019	473910536
	Microphone	NOR 1225	Norsonic	384687	15/01/2021	N/a*
Both	Class 1 Calibrator[6]	Type 4231	Brüel & Kjær	2478249	20/07/2020	04743/1

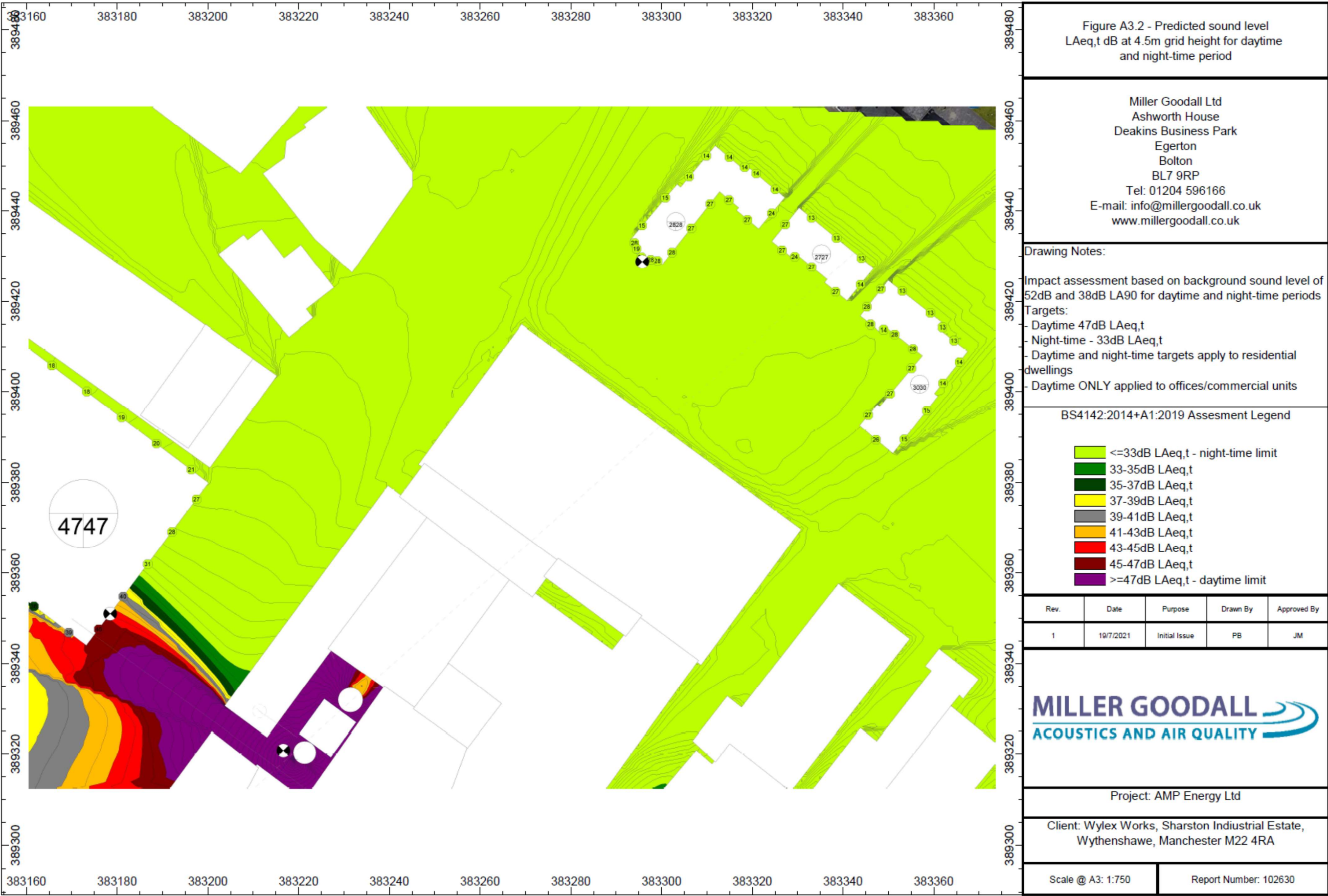
*No reference number available, but the certificate is available upon request.

8.1.2 Weather conditions were determined both at the start and on completion of the survey. It is considered that meteorological conditions were appropriate for environmental noise measurements.

⁵ BS 7445-1: 2003 Description and measurement of environmental noise - Part 1: Guide to quantities and procedures

Appendix 3: Noise Modelling





Appendix 4: Manufacturers Data

Biomass Boiler Technical Data

INDUSTRIAL
UNLEASH THE POWER OF WOOD

GILLES
BIOMASS HEATING

HPKI-R 995

COMBUSTION		HPKI-R 995
Heat output full load / part load	[kW]	995 / 299
Combustion chamber load	[kW/m³]	436,40
Heating surface load	[kW/m²]	16,05
Flue gas temperature nominal load	[°C]	110 - 200
Max. flue gas volume	[m³/h]	4.000

CHIMNEY GUIDE LINE:

The length of the flue gas pipe should not exceed 50% of the total height of the chimney.

Rule of thumb: each 90° bend requires 1m extra of chimney height

each 45° bend requires 0,5m extra of chimney height

A draught stabiliser with an explosion flap is recommended.

Access for cleaning the flue gas pipe and chimney is necessary.

ATTENTION:  **Flue and chimney diameters are to be determined and designed by the supplier of the chimney taking into account the local, statutory regulations!** 

EMISSIONS		HPKI-R 995
Dust @ 6% O ₂	[mg/m³]	75,15
CO @ 6% O ₂	[mg/m³]	111,75
NOX @ 6% O ₂	[mg/m³]	239,98
Dust @ 13% O ₂	[mg/MJ]	26,90
CO @ 13% O ₂	[mg/MJ]	40,00
NOX @ 13% O ₂	[mg/MJ]	85,90
Sound pressure level Boiler *	[db _A]	96
Sound pressure level Fan **	[db _A]	91

ELECTRICAL REQUIREMENTS		HPKI-R 995
Power supply		400Vac/50Hz, 3Ph+N+PE
Max. pre-fuse rating ***	[A]	50

* max. value during cleaning process

** non-binding average value without consideration of site conditions

*** excl. fuel feed system which is site specific

Specifications subject to change without notice

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01/2020



GILLES Energie- und Umwelttechnik GmbH & Co KG
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E-MAIL: office@gilles.at

WEB: www.gilles.at

Gerichtsstand: A-4810 Gmunden

FN317217x

UID-Nummer: ATU64471609

Specification sheet INDUSTRIAL
HPKI-R MOVING GRATE TECHNOLOGY

- Heating technician / building technician
- electrical installation technician
- Froling customer services

The assembly staff must have read and understood the instructions in the documentation.

2.3.2 Protective equipment for assembly staff

You must ensure that staff have the protective equipment specified by accident prevention regulations.



- For transportation, setup and assembly:
 - suitable workwear
 - protective gloves
 - sturdy shoes

2.3.3 Qualification of operating staff



CAUTION



If unauthorised persons enter the store / working range:

Risk of personal injury and damage to property

- ☐ The operator is responsible for keeping unauthorised persons, in particular children, away from the system.

Only trained operators are permitted to operate the unit. The operator must also have read and understood the instructions in the documentation.

2.3.4 Protective equipment for operating staff

You must ensure that staff have the protective equipment specified by accident prevention regulations.



- For inspection and cleaning:
 - suitable workwear
 - protective gloves
 - sturdy shoes



- Additional for operating:
 - Hearing protection (sound level > 70 dB)
 - Protective goggles

2.4 Design Information

Carrying out modifications to the system and changing or deactivating safety equipment is prohibited.

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Glossary of Terms

Decibel (dB) The unit used to quantify sound pressure levels; it is derived from the logarithm of the ratio between the value of a quantity and a reference value. It is used to describe the level of many different quantities. For sound pressure level the reference quantity is 20 μPa , the threshold of normal hearing is in the region of 0 dB, and 140 dB is the threshold of pain. A change of 1 dB is usually only perceptible under controlled conditions.

dB L_A Decibels measured on a sound level meter incorporating a frequency weighting (A weighting) which differentiates between sounds of different frequency (pitch) in a similar way to the human ear. Measurements in dB L_A broadly agree with an individual's assessment of loudness. A change of 3 dB L_A is the minimum perceptible under normal conditions, and a change of 10 dB L_A corresponds roughly to halving or doubling the loudness of a sound. The background noise level in a living room may be about 30 dB L_A ; normal conversation about 60 dB L_A at 1 meter; heavy road traffic about 80 dB L_A at 10 meters; the level near a pneumatic drill about 100 dB L_A .

$L_{A90,T}$ The A weighted noise level exceeded for 90% of the specified measurement period (T). In BS 4142: 2014+A1:2019 it is used to define background noise level.

$L_{Aeq,T}$ The equivalent continuous sound level. The sound level of a notionally steady sound having the same energy as a fluctuating sound over a specified measurement period (T). $L_{Aeq,T}$ is used to describe many types of noise and can be measured directly with an integrating sound level meter.

L_{Amax} The highest A weighted noise level recorded during the time period. It is usually used to describe the highest noise level that occurred during the event.

R_w Single number rating used to describe the sound insulation of building elements and is defined in BS EN ISO 10140-2: 2010 (formerly BSEN ISO 140-3:1995). It is derived by measurement under laboratory conditions and does not take into account the effects of flanking transmissions.

