

BlueTreeAcoustics



11 Colley Road • Sheffield • S5 9GT

T: +44 (0)7594 293 486

E: [info@bluetreeacoustics.co.uk](mailto:info@bluetreeacoustics.co.uk)

W: [www.bluetreeacoustics.co.uk](http://www.bluetreeacoustics.co.uk)

**Proposed Building Extensions,  
Rowley Mills, Penistone Road, Huddersfield**

**BS4142:2014+A1:2019 Sound Assessment Report**

**Document ref. 03780-130202**

**05/12/2025**

**On behalf of  
Reliance RG Ltd**

**Prepared by  
Owen Downey BSc(Hons) MIOA**

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## 1.0 INTRODUCTION

- 1.1 Blue Tree Acoustics has been appointed by Reliance RG Ltd to carry out a noise assessment for proposed new building extensions at their premises at Rowley Mills, Penistone Road, Huddersfield.
- 1.2 The Rowley Mills site is situated off the A629 Penistone Road between the villages of Fenay Bridge/Lepton and Highburton. There are existing nearby residential properties at Ashford Manor to the south of the site, and Woodsome Park to the northeast of the site.
- 1.3 There is also a new residential development situated in a neighbouring field to the north of the Rowley Mills site, which we understand will provide around 67no new dwellings comprising 2-storey and 3-storey units, built by Homes by Honey. At time of writing, we understand that construction works for this development have commenced.
- 1.4 Other commercial premises in addition to the Rowley Mills site are situated on Penistone Road opposite the Rowley Mills site. The remaining surrounding area primarily comprises open fields.
- 1.5 We understand that Reliance RG Ltd acquired the Rowley Mills site in the 1980s, and operation of the site is long-established in the area.
- 1.6 The Rowley Mills development proposal is to create a new 2-storey extension to the existing production area at the rear (east) of the building to provide ground floor level manufacturing space and potential for office or assembly space at 1<sup>st</sup> floor level, and a new 3-storey extension to the front (west) of the building to provide offices, conference spaces, and canteen/social spaces.
- 1.7 The noise impact assessment has included:
  - a) Inspection of the site and surroundings.
  - b) Review of outline architectural plans of the proposed development provided by the Client/Design Team.
  - c) Background sound monitoring survey undertaken at the site.
  - d) Measurement of operating sound levels of the manufacturing machinery.
  - e) Consideration of noise impact and sound control measures required to reduce sound impact in accordance with *British Standard 4142:2014+A1:2019 'Methods for rating and assessing industrial and commercial sound'* (BS4142:2014) and also with regard to planning conditions relating to the Homes by Honey development.

- 1.8 We understand that proposed extension works at the existing Reliance RG Ltd premises at International House, situated opposite the Rowley Mills site off the A629, will also be considered within the planning application for the Rowley Mills proposal. Permission was previously granted (ref. 2022/62/91909) for the extension works at International House, and, as the works involve extension of existing spaces within the building, no noise assessment was required, nor were any planning conditions relating to noise imposed. We understand that the proposals for International House will be similar to the existing use and include light manufacturing, incorporating development, prototype, and pre-production quantities rather than full production, along with office and administration use, and therefore are concluded to be of low noise impact. As such, the works at International House are not expected to have a significant bearing on the development proposals for the Rowley Mills site considered in this report.
- 1.9 A glossary of technical terminology and parameters used in this report is provided in Appendix 1.

## 2.0 NOISE SURVEY

2.1 The assessment of sound from industrial and commercial sources (including BS4142 assessment) typically requires quantification and consideration of the following key aspects:

- a) Specific sound source – This is the sound source to be assessed.
- b) Specific sound level – This is the sound level of the specific sound source at the assessment location, which is typically the nearest noise-sensitive receptor, such as a nearby dwelling. The specific sound level can be derived by direct measurement of the specific sound sources, or from manufacturer's data. Described in terms of  $L_{Aeq}$ .
- c) Ambient sound level – This is the totally encompassing sound at the assessment location at a given time. This usually comprises many sources, near and far, as well as the specific sound where present. Described in terms of  $L_{Aeq}$ .
- d) Residual sound level – This is the ambient sound remaining at the assessment location in the absence of the specific sound, e.g. when the specific sound source is turned off or suppressed to such a degree that it does not contribute to the ambient sound. Residual sound levels can be used to correct ambient sound levels as a means of removing the other sound levels from the total, so as to derive the specific sound level. Described in terms of  $L_{Aeq}$ .
- e) Background sound level – This is the sound pressure level during the quietest times, in the absence of the specific sound source. It is the level exceeded for 90% of the measurement time during the period to be assessed. Described in terms of  $L_{A90}$ .
- f) Reference time interval – This is the specified interval over which the specific sound is assessed. BS4142 defines this as 1 hour during daytime (0700-2300 hours) and 15 minutes during nighttime (2300-0700 hours).

2.2 To establish background sound levels, unattended environmental sound monitoring was undertaken by Blue Tree Acoustics from Tuesday 04/03/2025 through Friday 07/03/2025. The measurements were taken within the gardens of neighbouring residential properties to the site, and therefore are considered suitably representative of the nearest existing noise-sensitive receptors.

- 2.3 These unattended logging measurements were made over a series of contiguous 15-minute periods at Location 1 (Ashford Manor) and Location 2 (Woodsome Park), as indicated in Figure 1. The instruments used during these surveys were 1no Rion NL-52 Type 1/Class 1 integrating sound level meter and 1no Rion NA-28 Type 1/Class 1 integrating sound level meter. Each meter was within a valid period of laboratory calibration. Calibration checks were carried out both before and after the measurements, with minimal variance observed and results being within 0.2dB of the stated reference value. A proprietary environmental windshield was fitted to each sound level meter's microphone. The measurements were made with each microphone mounted on a tripod at approximately 1.5m above local ground level.
- 2.4 Weather conditions throughout the unattended noise survey periods were mostly dry. There were some periods of light rainfall during early morning hours on Friday 07/03/2025, but this is not considered to have significantly affected the measurement results and therefore this period has been included in the dataset. Wind conditions during the survey periods were generally calm (wind speeds < 5m/s). Archival data from a local weather station is reproduced in Appendix 3.
- 2.5 Attended noise level measurements were also taken within the Reliance RG Ltd Rowley Mills premises to collect data on source sound levels associated with the proposed new extension and existing operations.
- 2.6 The instrument used for these attended measurements was 1no Rion NA-28 Type 1/Class 1 integrating sound level meter. The meter was within a valid period of laboratory calibration. Calibration checks were carried out both before and after the measurements, with minimal variance observed and results being within 0.2dB of the stated reference value. A proprietary environmental windshield was fitted to the microphone. The measurements were made with the microphone mounted on a tripod at approximately 1.5m height above local ground level.
- 2.7 The measurement results are detailed in Appendix 2, and are summarised in the following tables.

**Table 1: Free-field external sound levels at Location 1 (Ashford Manor)**

Time period	dB L <sub>Aeq,15min</sub>	dB L <sub>Amax,15min</sub>	dB L <sub>A10,15min</sub>	dB L <sub>A90,15min</sub>
Daytime (0700-2300 hours)	49 - 65 (Average = 54)	51 - 97	49 - 63	48 - 52
Nighttime (2300-0700 hours)	49 - 64 (Average = 52)	51 - 83	49 - 66	48 - 53

**Table 2: Free-field external sound levels at Location 2 (Woodsome Park)**

Time period	dB L <sub>Aeq,15min</sub>	dB L <sub>Amax,15min</sub>	dB L <sub>A10,15min</sub>	dB L <sub>A90,15min</sub>
Daytime (0700-2300 hours)	36 - 53 (Average = 46)	47 - 75	39 - 54	32 - 47
Nighttime (2300-0700 hours)	30 - 52 (Average = 41)	41 - 76	32 - 52	28 - 44

- 2.8 Being a semi-rural location, the prevailing sound levels are generally of low magnitude, with occasional noisy events. Typical existing sources of environmental sound include road traffic on the A629 Penistone Road, wildlife, and occasional noise generated by existing activities within the Reliance RG Ltd premises – e.g. vehicles using the carparks, delivery and forklift truck (FLT) movements, mechanical plant.
- 2.9 Noise of an industrial character from the Rowley Mills site has long been part of the established soundscape around the site, and existing operational noise is a recognised component of the acoustic environment. Generally, we understand that the site operates without significant noise impact upon the existing nearby residential properties, and we understand that on occasions where there have been communications from neighbours concerning noise, it was attributable to a specific source and was rectified (e.g. a faulty mechanical plant item).
- 2.10 Environmental sound levels at Location 1 (Ashford Manor) are influenced by sound from continuous flowing water at Beldon Brook, which passes along the southern site boundary. This is observable in the measurement data for this location as a baseline of around 49dB L<sub>A90</sub>.

### 3.0 NOISE ASSESSMENT

- 3.1 We understand that there is no new external plant or equipment proposed, and that the potential new noise introduced by the proposed works will primarily be breakout of internal workshop noise via the building envelope of the new workshop extension. There will also be some increase in vehicle movements resulting from the proposed building extensions.
- 3.2 The proposed development involves extending the main manufacturing workshop area at the rear of the building with a new 2-storey extension providing manufacturing space at ground floor level and the potential for office space at 1<sup>st</sup> floor level.
- 3.3 A new 3-storey extension to the front (west) of the building is also proposed, which will provide non-manufacturing areas including offices, conference spaces, and canteen/social spaces. Internal sound levels in these areas will be low, i.e. sound levels typically expected of office/administrative areas rather than of manufacturing or production areas. As such, there will be minimal sound breakout from this part of the new extension works, and the proposed building construction incorporating double glazing will provide sufficient sound insulation.
- 3.4 The topography of the site is such that there is a steep slope up to the rear carpark at the eastern site boundary, and the carpark overlooks the roof of the existing main production workshop. The existing banking to the carpark will be dug out and retaining works will be undertaken to provide space for the new extension. This is beneficial, as the side walls of the extension will be mostly shielded by the slope of the land.
- 3.5 The existing workshop construction comprises a masonry base of approximately 2.5m height with insulated cladding panels on steel frame above. There are GRP style rooflights in the existing workshop building. We have presumed the new rear extension and central expansion will be of a similar construction using insulated metal cladding panels (e.g. Kingspan or similar). The proposal drawings indicate that the roof area of the workshop extensions will be used for positioning PV panels, and therefore it is presumed that no new rooflights are proposed.
- 3.6 We understand that there will be no change to the existing roller shutters and loading doors. Therefore, there will be no change in location of noise generation from deliveries or use of the FLT, compared to the current situation.

- 3.7 We understand that the Transport Assessment suggests that typical HGV movements during a peak daytime hour are expected to be around 3no arrivals and 3no departures, and that the maximum peak daytime hour could have 7no arrivals and 7no departures. Our acoustic modelling has assumed these maximum values based on the peak hour periods, and we understand that vehicle movements will typically be much less than this. We understand that there are no nighttime HGV movements proposed.
- 3.8 For staff/light goods vehicles (LGV), the Transport Assessment indicates that there could be 20no additional vehicle movements during the peak daytime hour, which overall would equate to an increase of 1.4dB(A) in noise from these vehicles. Consideration of criteria given in guidance such as *The Highways Agency Design Manual for Road and Bridges Volume 11 Section 3 Part 7 HD213/11 (Revision 1) Traffic Noise and Vibration* (DMRB) indicates that such a change in traffic noise would be of negligible long-term impact. Further, these additional vehicle movements would be distributed across the 3no carparking areas within the Rowley Mills site (i.e. to the front, side, and rear of the main building), and therefore the magnitude of increase at any given receptor is expected to be less than 1dB(A).
- 3.9 Specialist proprietary acoustic modelling software (CadnaA) has been used to simulate the existing Reliance RG Ltd site operation, together with the proposed new building extension. An acoustic model has been created, into which source sound levels from the Rowley Mills site, locations, vehicle routes, topography data, etc. have been input. The acoustic model output plots and details are presented in Appendix 4.
- 3.10 Based on the above, the following operational sound levels from the new extension are calculated at the nearby dwellings for different operating scenarios during daytime and nighttime. We understand that the current normal working hours at the Rowley Mills site are typically 0530-2300 hours, with some nightshift work also taking place on weekdays. Permitted operating hours are unrestricted, and therefore operations could take place during full dayshift and nightshift patterns (e.g. depending on workload, order requests, emergency production, etc.).
- 3.11 Table 3 below summarises the predicted operational sound levels at the identified receptors during daytime with all sound sources operating. Daytime levels are plotted at 1.5m height and at 4.0m height above local ground level in order to consider impact at living room windows and bedroom windows, respectively.

**Table 3: Calculated daytime operational sound levels at noise-sensitive receptors**

Acoustic model plot reference	Receptor location	dB L <sub>Aeq,1hour</sub> , Daytime 0700-2300 hours
Plot 1: Daytime operation, all sources – 1.5m plot height	Ashford Manor	40 dB
	Woodsome Park	25 dB
	Homes by Honey development	35 dB
Plot 2: Daytime operation, all sources – 4.0m plot height	Ashford Manor	41 dB
	Woodsome Park	30 dB
	Homes by Honey development	38 dB

3.12 Table 4 below summarises the predicted operational sound levels at the identified receptors during nighttime with 4no different scenarios of sound sources operating. Nighttime levels are plotted at 4.0m height above local ground level to consider the impact at bedroom windows.

**Table 4: Calculated nighttime operational sound levels at noise-sensitive receptors**

Acoustic model plot reference	Receptor location	dB L <sub>Aeq,15min</sub> , Nighttime 2300-0700 hours
Scenario A Plot 3: Nighttime operation, all sources – 4.0m plot height	Ashford Manor	45 dB
	Woodsome Park	30 dB
	Homes by Honey development	40 dB
Scenario B Plot 4: Nighttime operation, no FLT operating – 4.0m plot height	Ashford Manor	24 dB
	Woodsome Park	28 dB
	Homes by Honey development	34 dB
Scenario C Plot 5: Nighttime operation, no extract fan operating – 4.0m plot height	Ashford Manor	45 dB
	Woodsome Park	25 dB
	Homes by Honey development	39 dB
Scenario D Plot 6: Nighttime operation, no FLT and no extract fan operating – 4.0m plot height	Ashford Manor	23 dB
	Woodsome Park	20 dB
	Homes by Honey development	24 dB

- 3.13 It should be noted that the above assessment is based on the dwelling locations nearest to the Rowley Mills site. Other residential properties in the wider area are at greater distances from the site, and therefore the predicted noise impact upon them will be lower.
- 3.14 Prior consultations with Kirklees MBC and Homes by Honey with regard to assessing the impact of the Reliance RG Ltd operations on the new housing have resulted in the elaboration of specific noise criteria within the planning conditions pertaining to the residential development. We understand that Condition 7 of the permission states:

*“7. Prior to works above foundation level commencing, notwithstanding the submitted information, a Noise Impact Assessment report shall be submitted to and approved in writing by the Local Planning Authority. The Noise Impact Assessment demonstrate how each dwelling hereby approved shall adhere to BS8233 regarding sound insulation and noise reduction. The report shall:*

- a) Clearly show which habitable rooms in which plots will not achieve satisfactory indoor sound levels with windows open (35dB daytime / 30dB nighttime) and for these rooms provide a detailed specification of the noise mitigation measures that are necessary to achieve satisfactory indoor sound levels, including (but not necessarily limited to) the potential use of acoustic barriers an alternative ventilation scheme, where required.*
- b) Clearly show which external amenity areas at which plots will have daytime noise levels that exceed 50dB LAeq,16hour and for these plots provide a detailed specification for the additional noise mitigation measures that are required so that the outdoor noise levels at these plots does not exceed 50dB LAeq,16hour.*

*All works which form part of the approved scheme shall be completed prior to occupation of the aforementioned plots and retained thereafter.*

*Reason: In the interest of protecting the amenity of future occupiers through mitigating the impacts of noise pollution, in accordance with Policies LP24 and LP52 of the Kirklees Local Plan”*

- 3.15 We further understand that the above Condition was imposed in error by Kirklees MBC, and that the condition wording agreed in coalition with the Council and with Homes by Honey, as written in the Memorandum of Understanding (MoU) from May 2025, was:

*“Prior to works above foundation level commencing, notwithstanding the submitted information, a Noise Impact Assessment (NIA) shall be submitted to and approved in writing by the Local Planning Authority. The Noise Impact Assessment shall demonstrate how each dwelling hereby approved shall adhere to the indoor ambient noise levels for dwellings set out in Table 4 of BS8233:2014 regarding sound insulation and noise reduction, having regard to the theoretical potential maximum operational impacts of local businesses, as set out in Blue Tree Acoustics Report “Indicative Sound Assessment Report” document ref. 03780-730102 dated 11 December 2024. The NIA shall:*

- a) Clearly assess and demonstrate which habitable rooms in which plots will not achieve satisfactory indoor sound levels with windows open (such levels are defined as 35dB LAeq,1hour in living rooms and bedrooms (between 0700 and 2300 hours); 40dB LAeq,1hour in dining rooms (between 0700 and 2300*

hours); 30dB LAeq,15min and 45dB LAmax,F in bedrooms (between 2300 and 0700 hours). For any rooms where the defined satisfactory indoor sound levels are not achieved, the NIA must provide a detailed specification of the noise mitigation measures that are necessary on the application site to be installed and retained thereafter to achieve the defined satisfactory indoor sound levels. This may include (but is not necessarily limited to) (i) suitable acoustically specified glazing; (ii) sealed windows with appropriate ventilation provisions (mechanical or purge) to avoid overheating; and/or (iii) the potential use of a suitably designed acoustic barrier(s) installed at a position and height to be agreed with the Local Planning Authority to meet the defined sound levels;

- b) Clearly assess and demonstrate which external amenity areas at which plots will have sound levels that exceed 50dB LAeq,1hour (between 0700 and 2300). For any external amenity areas which fail to achieve this defined sound level, the NIA must provide a detailed specification for the additional noise mitigation measures that are required to be installed and retained on the application site thereafter, so that the external amenity noise levels at these plots does not exceed the specified sound level limit;
- c) Set out a scheme to notify the future residents of the application site of (i) the relevant defined noise limits, and (ii) the need to maintain, replace or replicate the specified and approved noise mitigation on their property (windows, ventilation systems and any barriers) to the same specification provided, in perpetuity.

All mitigation works which form part of the approved NIA shall be completed prior to the first occupation of the approved development and maintained and retained in perpetuity thereafter.

For the avoidance of doubt, and notwithstanding the provisions of The Town and Country Planning (General Permitted Development) (England) Order 2015 (as amended), including any subsequent or replacement legislation providing the same rights to residents; Permitted Development rights which alter or remove the specified and approved mitigation measures set out in the approved NIA are hereby removed. Any works to alter or remove the specified and approved noise mitigation shall not be undertaken without express planning consent from the Local Planning Authority. Any such approval shall include replacement mitigation measures with equivalent attenuation benefits being installed, unless it can be demonstrated that this is not required with reference to the potential future sound levels referenced in Blue Tree Acoustics Report "Indicative Sound Assessment Report" document ref. 03780-730102 dated 11 December 2024.

Reason: In the interest of protecting the amenity of future occupiers through mitigating the impacts of noise pollution, in accordance with Policies LP24 and LP52 of the Kirklees Local Plan"

- 3.16 Considering the above planning condition wording, the predicted operational sound levels from Reliance RG Ltd are suitable to meet the stipulated criteria at the new dwellings, and therefore the level of impact experienced at the Homes by Honey development is deemed suitable. We understand that acoustic mitigation, primarily in the form of acoustic glazing and ventilation, will be provided to the new dwellings to reduce noise impact from the Reliance RG Ltd site upon the residential occupiers. Additionally, we understand that the housing developer will advise all new

residents of the potential for audible industrial noise impact at the new dwellings, and that measures to mitigate this impact are provided, as per the MoU wording.

3.17 Table 5 below compares the predicted  $L_{Aeq}$  sound levels at the new Homes by Honey development against the planning condition criteria. While the predicted sound levels meet the planning condition criteria for the new dwellings, it should be noted that this does not necessarily imply that adverse effect is avoided, hence the requirement for acoustic mitigation to be provided to the new dwellings.

**Table 5: Calculated operational sound level impact at the Homes by Honey development**

Acoustic model plot reference	Predicted dB $L_{Aeq,T}$ at dwelling	Planning condition criterion		
		50 dB $L_{Aeq,T}$ Daytime, external	35 dB $L_{Aeq,T}$ Daytime, internal *	30 dB $L_{Aeq,T}$ Nighttime, internal *
Plot 1: Daytime operation, all sources – 1.5m plot height	35 dB	✓	✓	N/A
Plot 2: Daytime operation, all sources – 4.0m plot height	38 dB	✓	✓	N/A
Scenario A Plot 3: Nighttime operation, all sources – 4.0m plot height	40 dB	N/A	N/A	✓
Scenario B Plot 4: Nighttime operation, no FLT operating – 4.0m plot height	34 dB	N/A	N/A	✓
Scenario C Plot 5: Nighttime operation, no extract fan operating – 4.0m plot height	39 dB	N/A	N/A	✓
Scenario D Plot 6: Nighttime operation, no FLT and no extract fan operating – 4.0m plot height	24 dB	N/A	N/A	✓

\* Assumes -10dB(A) attenuation for open window. Time period, T, as defined in Paragraph AP4.5. Although not stated specifically in the planning condition, BS8233 assumes T to be 16-hours during daytime and 8-hours during nighttime.

3.18 With regard to nighttime  $L_{Amax}$  sound levels, the greatest sound generation source for these is external activity such as FLT movements or skip emptying, which are not proposed to take place

at night. Our previous modelling of potential future scenarios including FLT movements on the access road at night (BTA document ref. 03780-590102 dated 30/04/2025) predicted sound levels at the Homes by Honey development of up to 58dB  $L_{Amax}$  generated by FLT movements on the access road. Assuming an open window, this could result in an internal sound level of 48dB  $L_{Amax}$ , which exceeds the Council criterion of 45dB  $L_{Amax}$ . Following the Agent of Change principles defined in planning regulations, the mitigation proposed for the Homes by Honey development should consider potential future scenarios, i.e. windows are expected to be closed to provide suitable sound attenuation and the ventilation and overheating strategy should allow for this.

- 3.19 In considering impact on existing nearby residential receptors, the predicted daytime operational sound levels are between 13dB and 21dB below the prevailing ambient sound levels at Ashford Manor and at Woodsome Park. Depending on the operational scenario, the predicted nighttime sound levels are between 7dB and 29dB below the prevailing ambient sound levels at Ashford Manor and at Woodsome Park. This suggests relatively low impact, with industrial sound less likely to be prominent at these residential receptors. The extent of any effects on people at the dwellings also depends on the magnitude of the specific sound sources relative to background sound levels and the prominence of any characteristic features in the industrial/commercial sound, as considered by BS4142:2014.
- 3.20 The following section considers the predicted noise impact of the Rowley Mills extension proposal with regard to BS4142:2014 at the existing nearby dwellings at Ashford Manor and Woodsome Park. The assessment considers the predicted daytime operation set out above in Table 3 and the 4no nighttime operational scenarios set out above in Table 4.
- 3.21 In terms of BS4142 impact, Table 6 below summarises the BS4142:2014 outcome for each scenario presented in Table 3 and Table 4 above, as calculated in Table 7 further below, including acoustic feature corrections. Table 6 also compares the BS4142:2014 impact with regard to the relevant daytime or nighttime background sound level at the dwellings.

**Table 6: Calculated daytime operational sound levels at noise-sensitive receptors**

Acoustic model plot reference	Receptor location	Rating Level, dB L <sub>Ar,Tr</sub>	Background Sound Level, dB L <sub>A90</sub>	Difference (Background sound level minus Rating Level), dB
Plot 1: Daytime operation, all sources – 1.5m plot height	Ashford Manor	46	50	-4
	Woodsome Park	32	42	-10
Plot 2: Daytime operation, all sources – 4.0m plot height	Ashford Manor	47	50	-3
	Woodsome Park	36	42	-6
Scenario A Plot 3: Nighttime operation, all sources – 4.0m plot height	Ashford Manor	51	49	+2
	Woodsome Park	36	30	+6
Scenario B Plot 4: Nighttime operation, no FLT operating – 4.0m plot height	Ashford Manor	30	49	-19
	Woodsome Park	34	30	+4
Scenario C Plot 5: Nighttime operation, no extract fan operating – 4.0m plot height	Ashford Manor	51	49	+2
	Woodsome Park	31	30	+1
Scenario D Plot 6: Nighttime operation, no FLT and no extract fan operating – 4.0m plot height	Ashford Manor	29	49	-20
	Woodsome Park	26	30	-4

#### 4.0 BS4142:2014+A1:2019 COMMERCIAL/INDUSTRIAL SOUND ASSESSMENT

4.1 The most relevant British Standard for assessing sound impact from commercial and industrial premises upon residential property is *British Standard 4142:2014+A1:2019 'Methods for rating and assessing industrial and commercial sound'* (BS4142:2014). This requires the level of sound radiating from the proposed, new, modified or additional source(s) of sound of an industrial and/or commercial nature (in  $L_{Aeq}$ ) to be compared with the existing Background Sound Level ( $L_{A90}$ ) at any nearby residential property.

4.2 The scope of BS4142 states:

*"1.1 This British Standard describes methods for rating and assessing sound of an industrial and/or commercial nature, which includes:*

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

*The methods described in this British Standard use outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident.*

*1.2 This standard is applicable to the determination of the following levels at outdoor locations:*

- a) rating levels for sources of sound of an industrial and/or commercial nature;*  
*and*
- b) ambient, background and residual sound levels, for the purposes of:*
  - 1) investigating complaints;*
  - 2) assessing sound from existing, proposed, new, modified or additional source(s) of sound of an industrial and/or commercial nature; and*

- 3) *assessing sound at proposed new dwellings or premises used for residential purposes.*

*1.3 The determination of noise amounting to a nuisance is beyond the scope of this British Standard.*

*Sound of an industrial and/or commercial nature does not include sound from the passage of vehicles on public roads and railway systems.*

*The standard is not intended to be applied to the rating and assessment of sound from:*

- a) recreational activities, including all forms of motorsport;*
- b) music and other entertainment;*
- c) shooting grounds;*
- d) construction and demolition;*
- e) domestic animals;*
- f) people;*
- g) public address systems for speech; and*
- h) other sources falling within the scopes of other standards or guidance.*

*The methodology set out in Clauses 7, 8, and 9 of this standard is not intended to be used to assess the extent of the impact at indoor locations. Internal sound levels can be taken into account as outlined in Clause 11.*

*The standard is not intended to be applied to the assessment of indoor sound levels.*

*The standard is not applicable to the assessment of low frequency noise.”*

4.3 The standard describes various methods for determining whether a correction or corrections should be applied to reflect the prominence of characteristic features in the industrial/commercial specific sound experienced at the assessment location. In subjective assessment, if the industrial/commercial sound has a tonal element that is just perceptible at the receptor, a 2dB penalty can be applied. If the tone is clearly perceptible, a 4dB penalty can be applied. If the tone is highly perceptible, a 6dB penalty can be applied. The standard also describes two objective methods for assessing tonal sound which may apply a penalty of up to 6dB.

4.4 Similarly, a penalty of 3dB can be applied for a sound that has impulsivity that is just perceptible. If the impulsivity is clearly perceptible, a 6dB penalty can be applied. If the impulsivity is highly

perceptible, a 9dB penalty can be applied. The standard also describes an objective method for assessing impulsivity which may apply a penalty of up to 9dB.

- 4.5 If the sound has clearly identifiable on/off conditions during the reference period and this is readily distinctive against the residual acoustic environment during the reference period, a 3dB penalty for intermittency can be applied. No objective method is given in the standard for assessing intermittency.
- 4.6 Where characteristic features of the specific sound are neither tonal nor impulsive, nor intermittent, but are readily distinctive against the residual acoustic environment, a 3dB subjective penalty can be applied.
- 4.7 Therefore, depending on the circumstances, a total penalty of between 0 and 18dB could potentially be applied to allow for characteristic features of the industrial/commercial sound. However, BS4142:2014 does state that, if any single feature is dominant to the exclusion of others, then it may be appropriate to apply a reduced or zero correction for the minor characteristic. Also, the subjective prominence of the character of the specific sound at the noise-sensitive receptor should be considered, and the extent to which such characteristics will attract attention and/or be masked by residual sound at that location.
- 4.8 The level of the industrial/commercial sound measured or calculated in  $L_{Aeq}$  terms, plus any penalty as described above, provides the Rating Level.
- 4.9 BS4142 states that:

*“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.*

*Obtain an initial estimate of the impact of the specific sound by subtracting the measured background sound level (...) from the rating level (...).*

*NOTE 1. More than one assessment might be appropriate.*

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

*NOTE 2. Adverse impacts include, but are not limited to, annoyance and sleep disturbance. Not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact.*

*Where the initial estimate of the impact needs to be modified due to the context, take all pertinent factors into consideration, including the following.*

- 1) *The absolute level of sound. For a given difference between the rating level and the background sound level, the magnitude of the overall impact might be greater for an acoustic environment where the residual sound level is high than for an acoustic environment where the residual sound level is low.*

*Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night.*

*Where residual sound levels are very high, the residual sound might itself result in adverse impacts or significant adverse impacts, and the margin by which the rating level exceeds the background might simply be an indication of the extent to which the specific sound source is likely to make those impacts worse.*

- 2) *The character and level of the residual sound compared to the character and level of the specific sound. Consider whether it would be beneficial to compare the frequency spectrum and temporal variation of the specific sound with that of the ambient or residual*

*sound, to assess the degree to which the specific sound source is likely to be distinguishable and will represent an incongruous sound by comparison to the acoustic environment that would occur in the absence of the specific sound. Any sound parameters, sampling periods and averaging time periods used to undertake character comparisons should reflect the way in which sound of an industrial and/or commercial nature is likely to be perceived and how people react to it.*

*NOTE 3 Consideration ought to be given to evidence on human response to sound and, in particular, industrial and/or commercial sound where it is available. (...)*

- 3) *The sensitivity of the receptor and whether dwellings or other premises used for residential purposes will already incorporate design measures that secure good internal and/or outdoor acoustic conditions, such as:*
- i) facade insulation treatment;*
  - ii) ventilation and/or cooling that will reduce the need to have windows open so as to provide rapid or purge ventilation; and*
  - iii) acoustic screening.”*

4.10 BS4142:2014 lists the following information to be reported when assessing sites to the standard.

**Table 7: BS4142:2014+A1:2019 – Required information**

a) Statement of qualifications, competency, professional memberships and experience directly relevant to the application of this British Standard of all personnel contributing to the assessment:
Owen Downey BSc(Hons) Audio Technology, Member of the Institute of Acoustics (MIOA), over 20 years' experience in acoustic consultancy, including undertaking many BS4142 assessments previously.
Blue Tree Acoustics is a member of the Association of Noise Consultants (ANC).

b) Source being assessed as follows:	
1) description of the main sound sources and of the specific sound;	Internal manufacturing workshop machine and process noise. External HGV and FLT movements.
2) hours of operation;	Working hours as described in this report, including daytime and nighttime hours.
3) mode of operation (e.g. continuous, twice a day, only in hot weather);	Continuous
4) statement of operational rates of the main sound sources (e.g. maximum load setting, 50% max rate, low load setting); and	We understand that the machinery generally runs at a single fixed rate. The highest measured workshop sound levels have been used. Vehicle movements are intermittent.
5) description of premises in which the main sound sources are situated (if applicable).	As described throughout this report and as indicated in Figure 2.
c) Subjective impressions, including:	
1) dominance or audibility of the specific sound; and	The specific sound source does not yet exist at the site, as the Rowley Mills extension areas are not yet constructed or operational.  Existing operational noise of the same character was found to generally be barely audible at the residential site receptor locations. Intermittent noisy events are potentially audible at times, e.g. skip emptying, FLT movements.
2) main sources contributing to the residual sound.	As described throughout this report.
d) The existing context (see Clause 4 and Clause 11), including an assessment of the sensitivity of the receptor:	
The sensitive receptors are as described in this report, being the nearest dwellings to the Rowley Mills development site. There are other dwellings in the wider area, situated at greater distance from the site. As such, this assessment considers impact at the receptors most exposed to the specific sound source; the impact at more distant dwellings will be lower.	

e) Measurement locations, their distance from the specific sound source, the topography of the intervening ground and any reflecting surface other than the ground, including a photograph, or a dimensioned sketch with a north marker. A justification for the choice of measurement locations should also be included.

Location 1 was selected to be suitably representative of the nearest residential receptors at Ashford Manor, to the south of the development site. This is a free-field location within the rear garden of a neighbouring property, as shown in the following photograph.



Location 2 was selected to be suitably representative of the nearest residential receptors at Woodsome Park, to the northeast of the development site. This is a free-field location within the rear garden of a neighbouring property, as shown in the following photograph.



f) Sound measuring systems, including calibrator or pistonphone used:		
	Location 1	Location 2
1) type and/or model;	Class 1/Type 1 sound level meter. Rion NL-52.	Class 1/Type 1 sound level meter. Rion NA-28.
2) manufacturer;	Rion	Rion
3) serial number (S/N); and	00331824	00501389
4) details of the latest verification test including dates.	Calibrated by CMR on 25/10/2023	Calibrated by ANV on 20/11/2024

g) Operational tests:		
1) reference level(s) of calibrator, multi-function calibrator or pistonphone; and	94.0dB Rion NC-74 calibrator (S/N 34257022), calibrated by CMR on 24/10/2023	94.0dB B&K 4230 calibrator (S/N 830980), Calibrated by ANV on 20/11/2024
h) Weather conditions, including:		
1) wind speed(s) and direction(s);	Generally <5m/s, as supported by archival data from a local weather station (reproduced in Appendix 3).	
2) presence of conditions likely to lead to temperature inversion (e.g. calm nights with little cloud cover);	Temperature inversion improbable given the proximity of the assessment location to the specific sound source.	
3) precipitation;	None significant	
4) fog;	None	
5) wet ground;	None significant	
6) frozen ground or snow coverage;	None	
7) temperature; and	As presented in Appendix 3.	
8) cloud cover.	Approximately 10% cloud cover during sound monitoring equipment installation setup.	
i) Dates and times of measurements		
As set out in this report.		
j) Measurement time intervals:		
As set out in this report.		
k) Reference time interval(s).		
1 hour in the daytime		
15 minutes at nighttime		

l) Measured sound level(s):	
1) residual sound level(s) and method of determination;	Specific source not fully operational (see below for more information).
2) ambient sound level(s) and method of determination;	As described throughout this report. See Appendix 2 for more information.
3) specific sound level(s) and method of determination;	It was not possible to determine the specific sound level by measurement at the site location, as the proposed extensions do not currently exist. Measurements were taken of the operational sound levels in the existing manufacturing workshop, which are representative of future sound levels in the new extensions, along with measurements of other existing sources including FLT movements, skip emptying, etc.
4) justification of methods; and	Method follows BS4142:2014 procedure for determining specific sound level from measurement. Environmental sound level monitoring has been undertaken at the nearest accessible existing neighbouring residential properties.
5) details of any corrections applied.	Corrections applied in the acoustic model calculations for distance and building attenuation, as described throughout this report.
m) Background sound level(s) and measurement time interval(s) and, in the case of measurements taken at an equivalent location, the reasons for presuming it to be equivalent:	
<p>15-minute measurements were made at Location 1 (Ashford Manor) and Location 2 (Woodsome Park), as described in this report.</p> <p>The representative background sound level at Location 1 (Ashford Manor) was found to be 50dB L<sub>A90</sub> during daytime, and 49dB L<sub>A90</sub> during nighttime.</p> <p>The representative background sound level at Location 2 (Woodsome Park) was found to be 42dB L<sub>A90</sub> during daytime, and 30dB L<sub>A90</sub> during nighttime.</p>	

n) Rating Level(s):								
1) specific sound level(s);	As summarised in Table 3 and Table 4, and presented below.							
	<table> <tr> <td rowspan="2"><b>Daytime:</b></td> <td>Ashford Manor</td> <td>=</td> <td>41dB L<sub>Aeq</sub></td> </tr> <tr> <td>Woodsome Park</td> <td>=</td> <td>30dB L<sub>Aeq</sub></td> </tr> </table>	<b>Daytime:</b>	Ashford Manor	=	41dB L <sub>Aeq</sub>	Woodsome Park	=	30dB L <sub>Aeq</sub>
	<b>Daytime:</b>		Ashford Manor	=	41dB L <sub>Aeq</sub>			
		Woodsome Park	=	30dB L <sub>Aeq</sub>				
	<table> <tr> <td rowspan="2"><b>Nighttime Scenario A:</b></td> <td>Ashford Manor</td> <td>=</td> <td>45dB L<sub>Aeq</sub></td> </tr> <tr> <td>Woodsome Park</td> <td>=</td> <td>30dB L<sub>Aeq</sub></td> </tr> </table>	<b>Nighttime Scenario A:</b>	Ashford Manor	=	45dB L <sub>Aeq</sub>	Woodsome Park	=	30dB L <sub>Aeq</sub>
	<b>Nighttime Scenario A:</b>		Ashford Manor	=	45dB L <sub>Aeq</sub>			
Woodsome Park		=	30dB L <sub>Aeq</sub>					
<table> <tr> <td rowspan="2"><b>Nighttime Scenario B:</b></td> <td>Ashford Manor</td> <td>=</td> <td>24dB L<sub>Aeq</sub></td> </tr> <tr> <td>Woodsome Park</td> <td>=</td> <td>28dB L<sub>Aeq</sub></td> </tr> </table>	<b>Nighttime Scenario B:</b>	Ashford Manor	=	24dB L <sub>Aeq</sub>	Woodsome Park	=	28dB L <sub>Aeq</sub>	
<b>Nighttime Scenario B:</b>		Ashford Manor	=	24dB L <sub>Aeq</sub>				
	Woodsome Park	=	28dB L <sub>Aeq</sub>					
<table> <tr> <td rowspan="2"><b>Nighttime Scenario C:</b></td> <td>Ashford Manor</td> <td>=</td> <td>45dB L<sub>Aeq</sub></td> </tr> <tr> <td>Woodsome Park</td> <td>=</td> <td>25dB L<sub>Aeq</sub></td> </tr> </table>	<b>Nighttime Scenario C:</b>	Ashford Manor	=	45dB L <sub>Aeq</sub>	Woodsome Park	=	25dB L <sub>Aeq</sub>	
<b>Nighttime Scenario C:</b>		Ashford Manor	=	45dB L <sub>Aeq</sub>				
	Woodsome Park	=	25dB L <sub>Aeq</sub>					
<table> <tr> <td rowspan="2"><b>Nighttime Scenario D:</b></td> <td>Ashford Manor</td> <td>=</td> <td>23dB L<sub>Aeq</sub></td> </tr> <tr> <td>Woodsome Park</td> <td>=</td> <td>20dB L<sub>Aeq</sub></td> </tr> </table>	<b>Nighttime Scenario D:</b>	Ashford Manor	=	23dB L <sub>Aeq</sub>	Woodsome Park	=	20dB L <sub>Aeq</sub>	
<b>Nighttime Scenario D:</b>		Ashford Manor	=	23dB L <sub>Aeq</sub>				
	Woodsome Park	=	20dB L <sub>Aeq</sub>					
2) any acoustic features of the specific sound; and	During the prior consultations with Kirklees MBC and Homes by Honey, an acoustic feature correction of +6dB was included to allow for characteristic features in the industrial specific sound. For consistency, this is also applied here.							
3) Rating Level(s).	<table> <tr> <td rowspan="2"><b>Daytime:</b></td> <td>Ashford Manor</td> <td>=</td> <td>47dB</td> </tr> <tr> <td>Woodsome Park</td> <td>=</td> <td>36dB</td> </tr> </table>	<b>Daytime:</b>	Ashford Manor	=	47dB	Woodsome Park	=	36dB
	<b>Daytime:</b>		Ashford Manor	=	47dB			
		Woodsome Park	=	36dB				
	<table> <tr> <td rowspan="2"><b>Nighttime Scenario A:</b></td> <td>Ashford Manor</td> <td>=</td> <td>51dB</td> </tr> <tr> <td>Woodsome Park</td> <td>=</td> <td>36dB</td> </tr> </table>	<b>Nighttime Scenario A:</b>	Ashford Manor	=	51dB	Woodsome Park	=	36dB
	<b>Nighttime Scenario A:</b>		Ashford Manor	=	51dB			
Woodsome Park		=	36dB					
<table> <tr> <td rowspan="2"><b>Nighttime Scenario B:</b></td> <td>Ashford Manor</td> <td>=</td> <td>30dB</td> </tr> <tr> <td>Woodsome Park</td> <td>=</td> <td>34dB</td> </tr> </table>	<b>Nighttime Scenario B:</b>	Ashford Manor	=	30dB	Woodsome Park	=	34dB	
<b>Nighttime Scenario B:</b>		Ashford Manor	=	30dB				
	Woodsome Park	=	34dB					
<table> <tr> <td rowspan="2"><b>Nighttime Scenario C:</b></td> <td>Ashford Manor</td> <td>=</td> <td>51dB</td> </tr> <tr> <td>Woodsome Park</td> <td>=</td> <td>31dB</td> </tr> </table>	<b>Nighttime Scenario C:</b>	Ashford Manor	=	51dB	Woodsome Park	=	31dB	
<b>Nighttime Scenario C:</b>		Ashford Manor	=	51dB				
	Woodsome Park	=	31dB					
<table> <tr> <td rowspan="2"><b>Nighttime Scenario D:</b></td> <td>Ashford Manor</td> <td>=</td> <td>29dB</td> </tr> <tr> <td>Woodsome Park</td> <td>=</td> <td>26dB</td> </tr> </table>	<b>Nighttime Scenario D:</b>	Ashford Manor	=	29dB	Woodsome Park	=	26dB	
<b>Nighttime Scenario D:</b>		Ashford Manor	=	29dB				
	Woodsome Park	=	26dB					

o) Excess of the Rating Level(s) over the measured background sound level(s) and the initial estimate of the impacts:			
<b>Daytime:</b>	Ashford Manor	=	-3dB
	Woodsome Park	=	-6dB
<b>Nighttime Scenario A:</b>	Ashford Manor	=	+2dB
	Woodsome Park	=	+6dB
<b>Nighttime Scenario B:</b>	Ashford Manor	=	-19dB
	Woodsome Park	=	+4dB
<b>Nighttime Scenario C:</b>	Ashford Manor	=	+2dB
	Woodsome Park	=	+1dB
<b>Nighttime Scenario D:</b>	Ashford Manor	=	-20dB
	Woodsome Park	=	-4dB
<p>BS4142:2014 states, <i>“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.”</i></p> <p>In BS4142:2014 difference terms, the predicted sound impact from the proposed Rowley Mills extensions is less than the measured background sound levels during daytime, and therefore well below the BS4142:2014 threshold for ‘low impact’. Also, the predictions for Ashford Manor for nighttime Scenario B and nighttime Scenario D are respectively -19dB and -20dB below the background sound level, and therefore well below the BS4142 threshold for ‘low impact’.</p> <p>In some cases, the predicted excess at night is +1dB or +2dB over the background sound level. In BS4142:2014 terms, this is normally considered as ‘around +0dB’ and of ‘low impact’.</p> <p>The impact at Woodsome Park for nighttime Scenario A and nighttime Scenario B is +4dB and +6dB, respectively. In BS4142:2014 terms, this is an indication of ‘adverse impact’, depending on the context.</p> <p>In summary, in BS4142:2014 terms, operation of the Rowley Mills site, including the proposed new extension areas, is seen to be of low impact during daytime. At night, the impact ranges from very low to ‘adverse’, depending on the operational activity taking place. The operational activities having greatest impact are seen to be external use of FLT and operation of the extract on the northern elevation of the existing building. These are both existing operational sound sources; in the absence of these, the predicted impact of the new building extension itself is very low.</p>			

p) Conclusions of the assessment after taking context into account:

As described above, the predicted daytime operational sound levels associated with the proposed extensions are notably lower than the prevailing ambient sound level at the receptor locations to varying degrees, and therefore would not be particularly noticeable or prominent above other general noise events in the area. Given this and the very low impact of the predicted noise from the new extension areas, the context provides no reason to alter the BS4142:2014 initial estimate result.

In terms of context, it should also be noted that the existing use of the application site already generates sound of the same industrial nature and operational characteristics, and of the same magnitude of impact. This is already experienced at the assessment locations, and thus the proposed new extensions will not introduce sound of a different nature or character to the pre-existing acoustic climate.

We also understand that the dwellings at Ashford Manor and Woodsome Park were built after the operation of the Rowley Mills site by Reliance RG Ltd had commenced. Noise of an industrial character has therefore long been part of the established soundscape around the site, and existing operational noise is a recognised component of the acoustic environment at these receptors and should be considered when assessing impact upon these receptors in context. On this basis, the effect of operational impact reaching the 'adverse' threshold in BS4142 terms is considered of less significance than, for example, situations where the industrial noise did not already exist or introduced a new feature or characteristic.

q) The potential impact of uncertainty:

Measurements have been undertaken in accordance with relevant standards and guidelines to minimise measurement uncertainty. Class 1/Type 1 instruments have been used for all measurements.

Ambient and residual sound levels were measured at suitable, representative locations. In terms of absolute sound levels, the predicted operational noise is below the prevailing ambient sound level, and therefore comparatively of low impact.

It is feasible that there could be some fluctuation in background sound levels, but this is very unlikely to significantly alter the outcome of the assessment – i.e. unlikely to significantly alter the margin of difference between the Rating Level and the background sound level such that significant changes in the threshold of effect are reached.

- 4.11 Considering the above, the magnitude of expected noise impact from the proposed new building extensions alone is comfortably within the range considered to be of 'low impact' in BS4142 terms, and would not result in BS4142 'adverse impact' on residential amenity. As such, further noise mitigation measures for the proposed building extension are not necessary.
- 4.12 At nighttime, the operation of external FLT and the existing extract on the northern building elevation have potential to result in a BS4142:2014 outcome of 'adverse impact', and therefore it is advisable to consider options to reduce nighttime impact of these sound sources. This could simply be via management controls such that these sources are not active during nighttime hours; in this regard, we understand that it is intended to operate FLT's externally between 0800-1700 hours only. Other options for acoustic mitigation include provision of sound attenuation measures such as acoustic louvres/silencers and/or timer controls to the extract system, and provision of localised barriers to reduce sound emission from FLT loading areas.
- 4.13 During the extension works it is advisable that acoustic performance be incorporated appropriately into the design and construction – e.g. repair any gaps or openings in existing structures that could facilitate unintended noise egress, ensure joints between cladding panels are tight-fitting and sealed, and ensure that any access doors are designed to achieve a good seal when closed (for example, by use of compressible rubber or neoprene seals where possible).
- 4.14 As mentioned above, we understand that there is no new external plant or equipment proposed for the new extensions. Should it be found necessary to provide new external fixed plant (e.g. mechanical building services), it is recommended that these items be suitably selected and designed to ensure that total noise emissions do not exceed the background sound levels identified at the receptor locations. It should be noted that this target applies to total noise emission from the development, and therefore individual plant items must be designed to be sufficiently below the background sound level such that the cumulative sound level does not exceed the target criterion.

## 5.0 SUMMARY AND CONCLUSIONS

- 5.1 A noise assessment has been carried out on behalf of Reliance RG Ltd for proposed new building extensions at their premises at Rowley Mills, Penistone Road, Huddersfield.
- 5.2 The development proposal is to provide a new 2-storey extension to the existing Rowley Mills production area at the rear (east) of the building to provide ground floor level manufacturing space and potential for office or assembly space at 1<sup>st</sup> floor level. A new 3-storey extension is also proposed to the front (west) of the building to provide offices, conference spaces, and canteen/social spaces.
- 5.3 This assessment has included measurement of external sound levels at the site to determine background sound levels at nearby sensitive receptors, as well as sample sound source measurements and acoustic model calculations of operational sound levels from the proposed new extensions based on the existing sound sources.
- 5.4 The results of the assessment show that daytime operation of the site, including of the proposed new building extensions, will generate a sound impact of no worse than -3dB at the nearest existing noise-sensitive receptors when assessed with regard to BS4142:2014. This indicates a low level of impact in BS4142:2014 terms, being below the threshold of 'low impact' and therefore unlikely to have adverse effect.
- 5.5 Depending on the operational scenario taking place, the predicted BS4142:2014 impact during nighttime operation ranges from very low to the threshold of 'adverse impact'. The greatest nighttime impact is predicted from operation of the existing external FLT movements and the existing extract fan in the northern elevation of the workshop building. Consideration of measures to reduce noise impact is recommended if nighttime operation of these sources is envisaged. We understand that the current proposals are to operate FLT's externally between 0800-1700 hours only, and therefore nighttime noise impact from FLT's will be mitigated.
- 5.6 The results of the assessment show that the operation of the proposed new building extensions alone will generate a sound impact of no worse than -4dB at the nearest noise-sensitive receptors at nighttime, when assessed with regard to BS4142:2014. This indicates a very low level of impact in BS4142:2014 terms, being well below the threshold of 'low impact' and therefore unlikely to have adverse effect. As such, noise impact from the proposed new extension itself is of negligible effect.

- 5.7 Operational noise impact on the new Homes by Honey development situated to the north of the Rowley Mills site is predicted to meet the noise criteria set out in planning conditions specifically to control noise impact from the Rowley Mills site, and therefore can be deemed suitable.

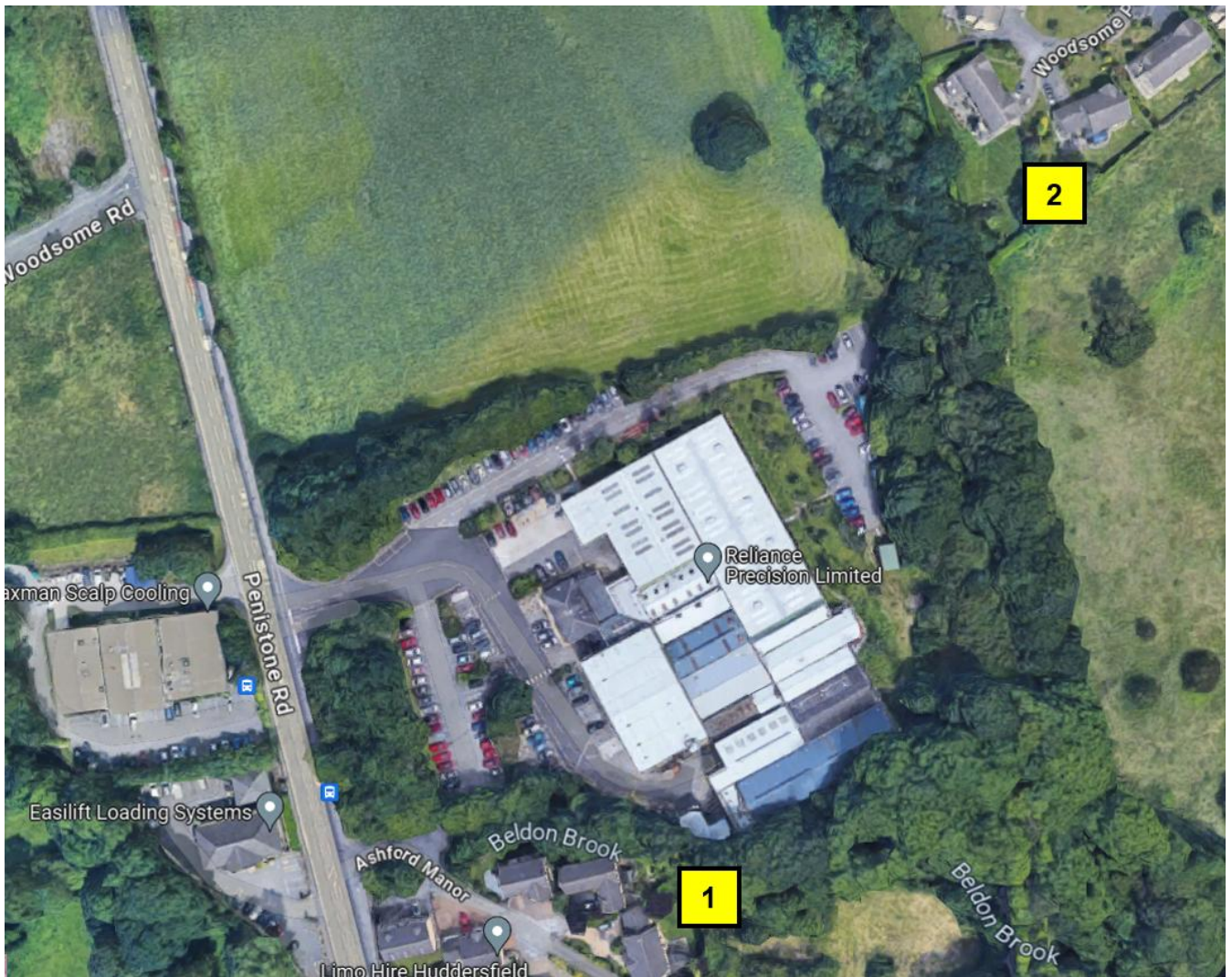
## 6.0 DISCLAIMER

- 6.1 This document is limited to addressing the specific acoustic issues contained herein, and its content is based on drawings and information provided to date by our Client/their Design Team.
- 6.2 All findings, comments, recommendations, etc., in this document are for acoustic purposes only; any and all other considerations and requirements, e.g. structural, airflow, thermal, fire safety, CDM compliance, determination of whether materials are dangerous, hazardous, deleterious, etc. (non-exhaustively), are the responsibility of other such suitably qualified specialists to check and advise on.
- 6.3 All findings, comments, recommendations, etc., in this document have been prepared with reasonable skill and care by BTA, within the scope of our Client's brief and timescales. Calculations and estimates upon which BTA's findings are elaborated are based on reasonable assumptions and industry practice that, by their nature, involve uncertainties that could cause future onsite results to differ materially from those predicted. BTA does not guarantee or warrant any calculation or estimate made, especially those based on data measured by third parties or information provided by third parties to BTA or otherwise relied upon by third parties. Any third-party information required and/or provided for the purpose of completing this document should not be considered as verified by BTA.
- 6.4 BTA's work may occasionally involve provision of acoustic performance advice and acoustic design recommendations that others may choose to regard as a "specification" under CDM 2015 (and thus others may occasionally choose to regard BTA to be a "Designer" under CDM 2015). Notwithstanding this, it is always the responsibility of others (Principal Designer) to approve/incorporate into their final design – or not – their final specification selections; although these may be based on BTA's acoustic performance advice, as BTA neither has control over how or whether BTA's acoustic advice is incorporated into the final design by others, nor any power to enforce that any such final specification selections made by others based on BTA's advice are appropriate in any regard beyond their acoustic performance qualities, it also remains the responsibility of others under CDM 2015 to ensure that any ancillary (non-acoustic) considerations in the course of selection, installation, maintenance, etc. of final specifications are advised upon by such relevantly qualified specialists (non-acoustic, and therefore non-BTA), and that any safety precautions identified in the course of their consideration by others are taken by others (the Principal Designer, Designers, Contractors, Client, etc.).
- 6.5 Products and materials that perform well acoustically tend to be heavier than standard products. Use of these products and materials may increase the weight of the element, and the CDM

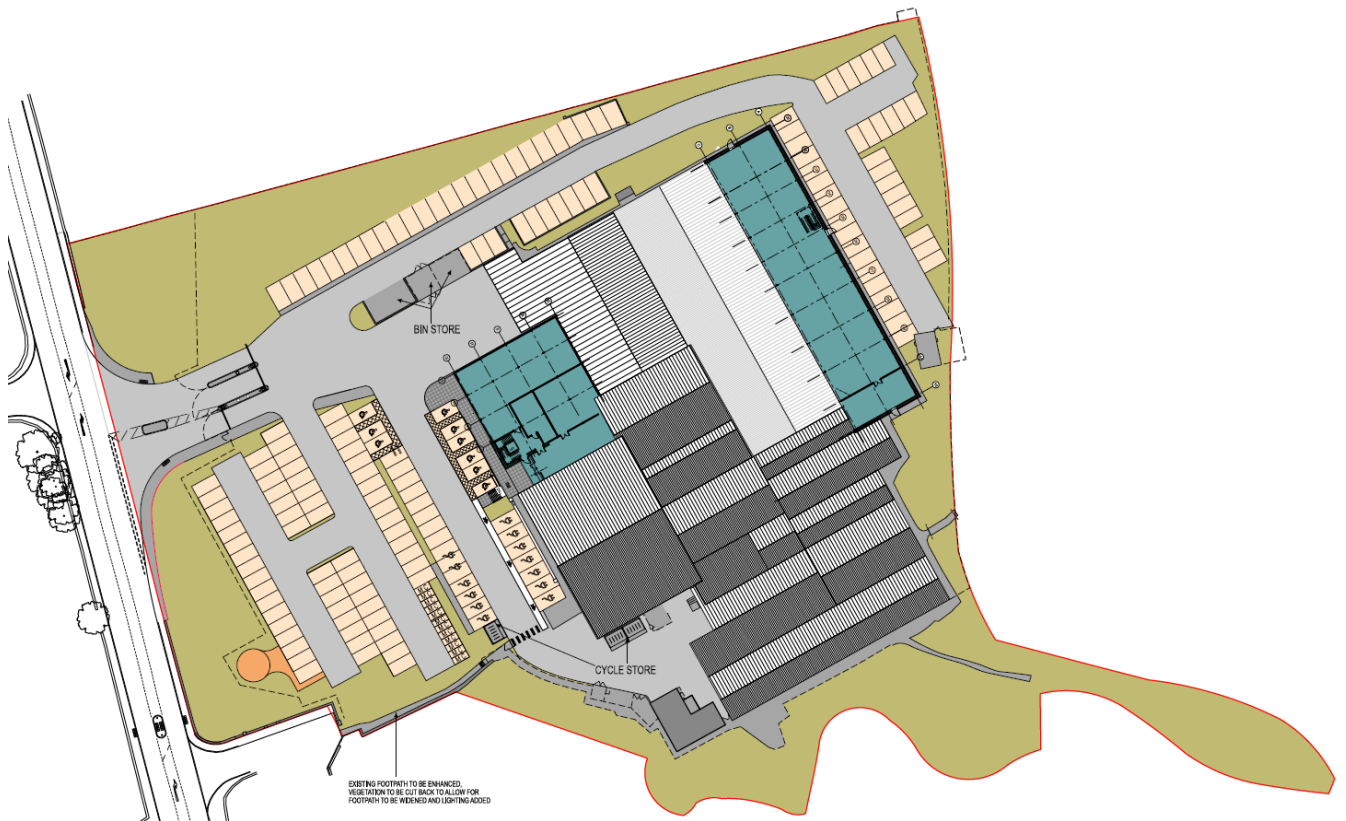
Principal Designer, Client, etc. must take care to ensure that this risk is mitigated as far as possible with appropriate changes to their design, and the Client, Principal Contractor, Contractor, Installer, Fitter, etc. must ensure that appropriate and safe lifting and installation techniques, maintenance, etc. are used to reduce any remaining risk. Wherever BTA advises that works such as acoustic barriers are desirable to attenuate noise, care must be taken by the CDM Principal Designer, Client, etc. to ensure that the risks associated with constructing and maintaining bunds, walls, fences, etc. are mitigated as far as possible with appropriate changes to their design, and the Client, Principal Contractor, Contractor, Installer, Fitter, etc. must ensure that appropriate and safe construction and installation techniques, maintenance, etc. are used to reduce any remaining risk.

- 6.6 This document has been prepared for the sole use, benefit, and information of our direct Client for the purposes agreed at the time of their formal instruction, and the information contained herein is the sole property of, and confidential to, our direct Client. The liability of BTA in respect of the information contained herein will not extend to any third party.

**FIGURE 1 – SITE AERIAL VIEW AND APPROXIMATE MEASUREMENT LOCATIONS**



**FIGURE 2 – PROPOSED SITE LAYOUT PLAN**



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## APPENDIX 1 – TECHNICAL UNITS AND INDICES

### a) Sound Pressure Level and the decibel (dB)

A sound wave is a small fluctuation of pressure in air. The human ear responds to these variations in pressure, producing the sensation of hearing. The ear can detect a very wide range of pressure variations. Due to the wide range of pressure variations detectable by the ear, a logarithmic scale is used to convert the values into manageable numbers. The dB (decibel) is the logarithmic unit used to describe sound (or noise) levels. The usual range of sound pressure levels is from 0 dB (threshold of hearing) to 120 dB (threshold of pain).

### b) Frequency and Hertz (Hz)

Frequency is a measure of the rate of fluctuation of a sound wave. The unit used is cycles per second, or Hertz (Hz). Sometimes large frequencies are often written as kilohertz (kHz), where 1kHz = 1000Hz.

Young people with normal hearing can hear frequencies in the range 20Hz to 20kHz. However, the upper frequency limit gradually reduces as a person gets older.

As the ear hears some frequencies better than others, the A-weighting scale is used to mimic human hearing. A-weighting applies a correction to the sound level at a given frequency depending on how well the ear hears that frequency.

### c) Glossary of Terms

In order to describe noise where the level is continuously varying, a number of other indices, including statistical parameters, are used. The indices used in this report are described below.

**L<sub>Aeq</sub>** This is the A-weighted equivalent continuous sound level which is an average of the total sound energy measured over a specified time period. In other words, L<sub>Aeq</sub> is the level of a continuous noise which has the same total (A-weighted) energy as the real fluctuating noise, measured over the same time period.

**L<sub>Amax</sub>** This is the maximum A-weighted sound level that was recorded during the monitoring period.

**L<sub>A90</sub>** This is the A-weighted sound level exceeded for 90% of the time period. L<sub>A90</sub> is used as a measure of background noise.

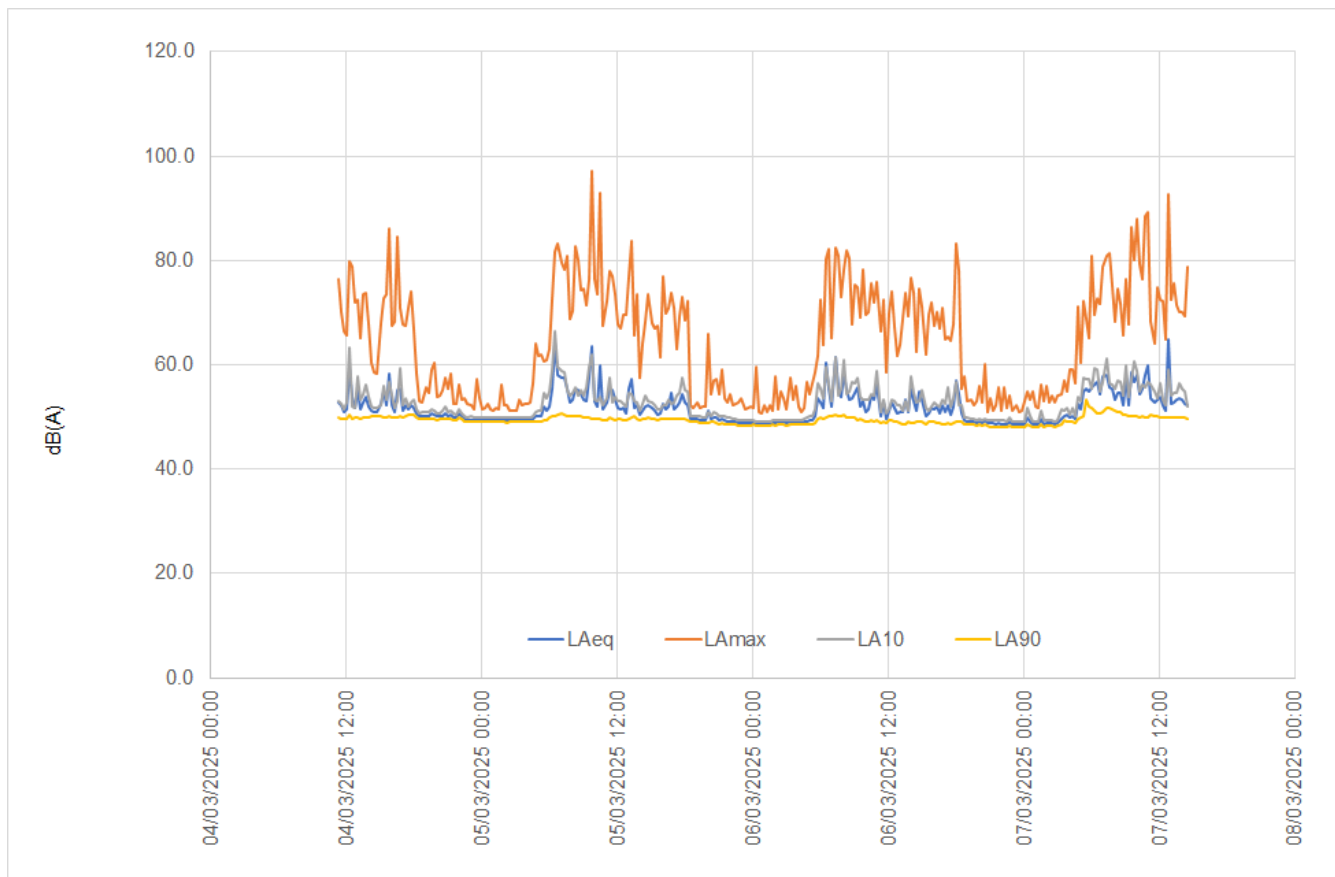
**L<sub>A10</sub>** This is the A-weighted sound level exceeded for 10% of the time period and is often used in the assessment of road traffic noise.

- NR Measured noise levels in each octave band are compared to the NR curve reference values. The overall NR value is the lowest NR curve that has not been exceeded.
- $D_{nT,w}$  Weighted standardised level difference, a single figure generated by comparing the  $D_{nT}$  with a reference curve. The reference curve is shifted in 1dB steps until the sum of adverse deviation of the test curve, compared to the reference curve, is as large as possible, but no more than 32.0 dB. The value of the shifted reference curve at 500Hz is taken as the  $D_{nT,w}$ . N.B. As  $D_{nT,w}$  for airborne transmission represents a level difference, an improvement generates a larger figure – used in airborne tests.
- $R_w$  Similar to the  $D_{nT,w}$  term, but a measure of the airborne sound insulation performance of a separating element, when tested in laboratory conditions. As such the build is essentially perfect, and has no flanking noise routes.  $D_{nT,w}$  values measured onsite will always be of a significantly lower value than the  $R_w$  value for a structure.

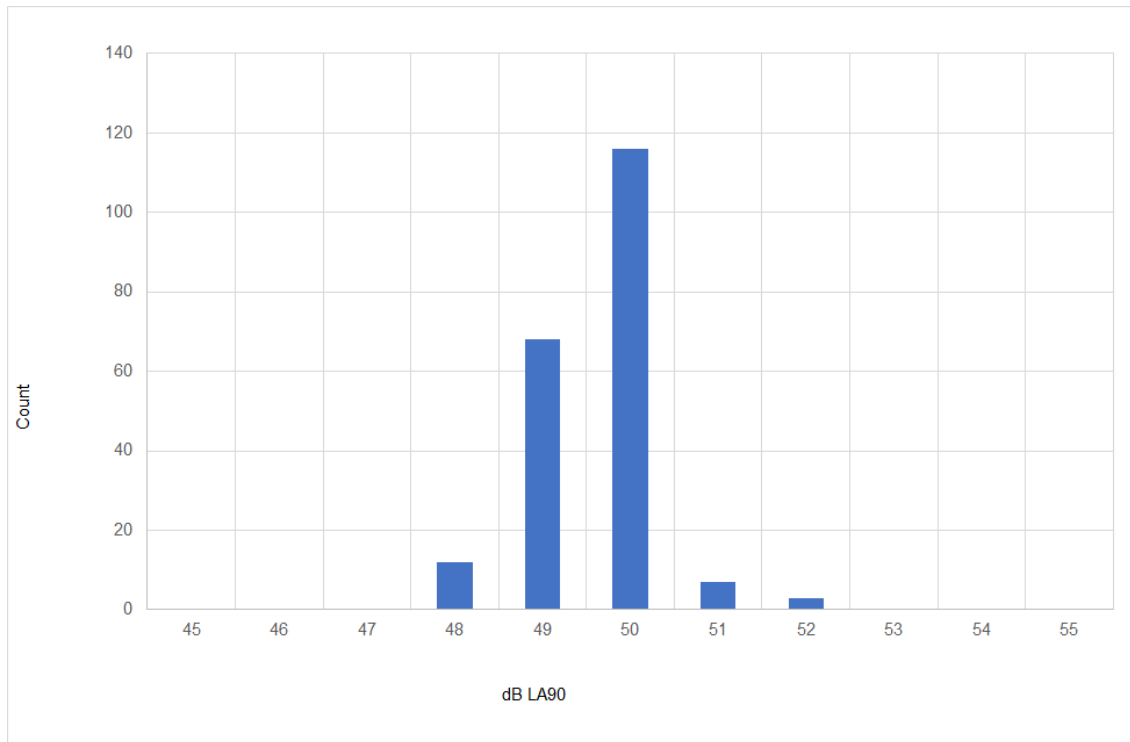
**APPENDIX 2 – NOISE SURVEY DATA**

**Location 1 – In residential garden at Ashford Manor, near southern site boundary – Tuesday 04/03/2025 through Friday 07/03/2025**

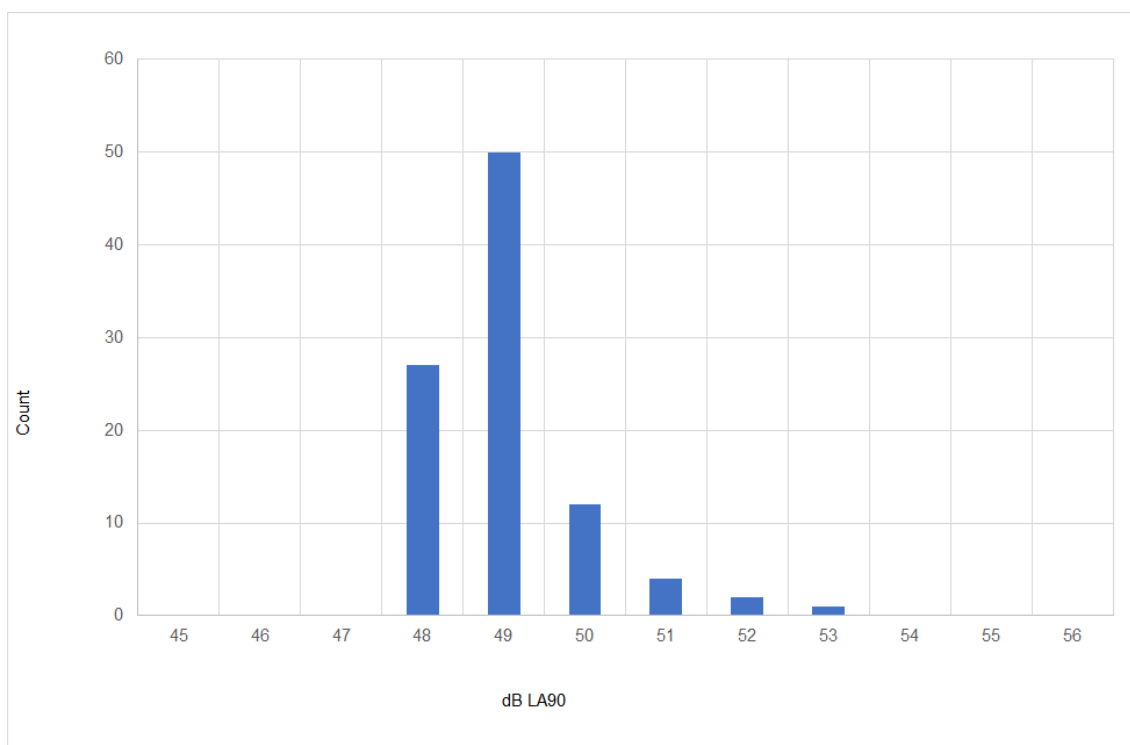
Rion NL-52 sound level meter (S/N 00331824). All values dB(A), free-field, 15-minute duration.



**Location 1 – Representative free-field background L<sub>A90</sub> analysis – Daytime (0700-2300 hours)**  
 Representative background sound level = 50dB L<sub>A90</sub>, with 39% of values being below this.

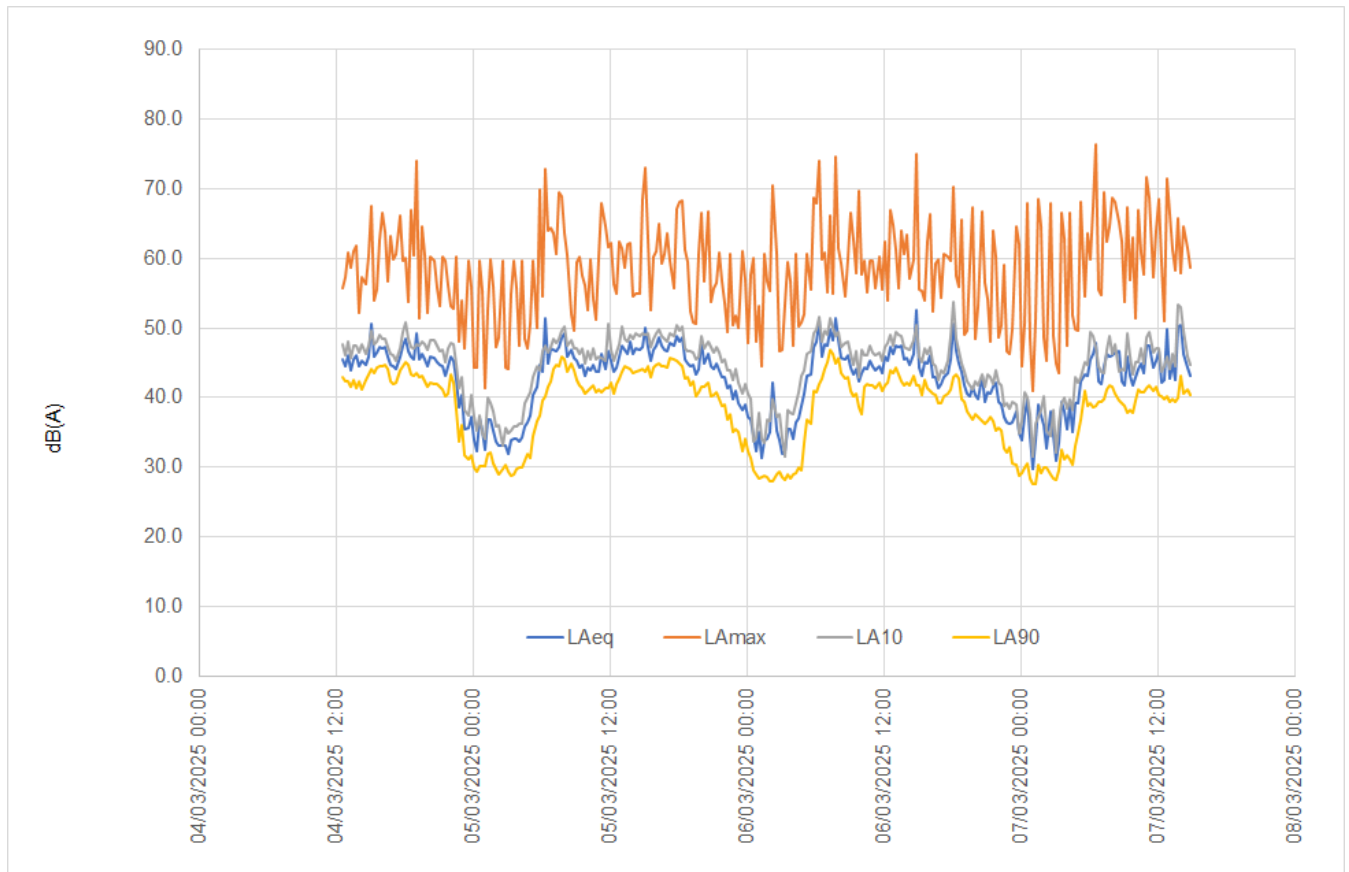


**Location 1 – Representative free-field background L<sub>A90</sub> analysis – Nighttime (2300-0700 hours)**  
 Representative background sound level = 49dB L<sub>A90</sub>, with 28% of values being below this.

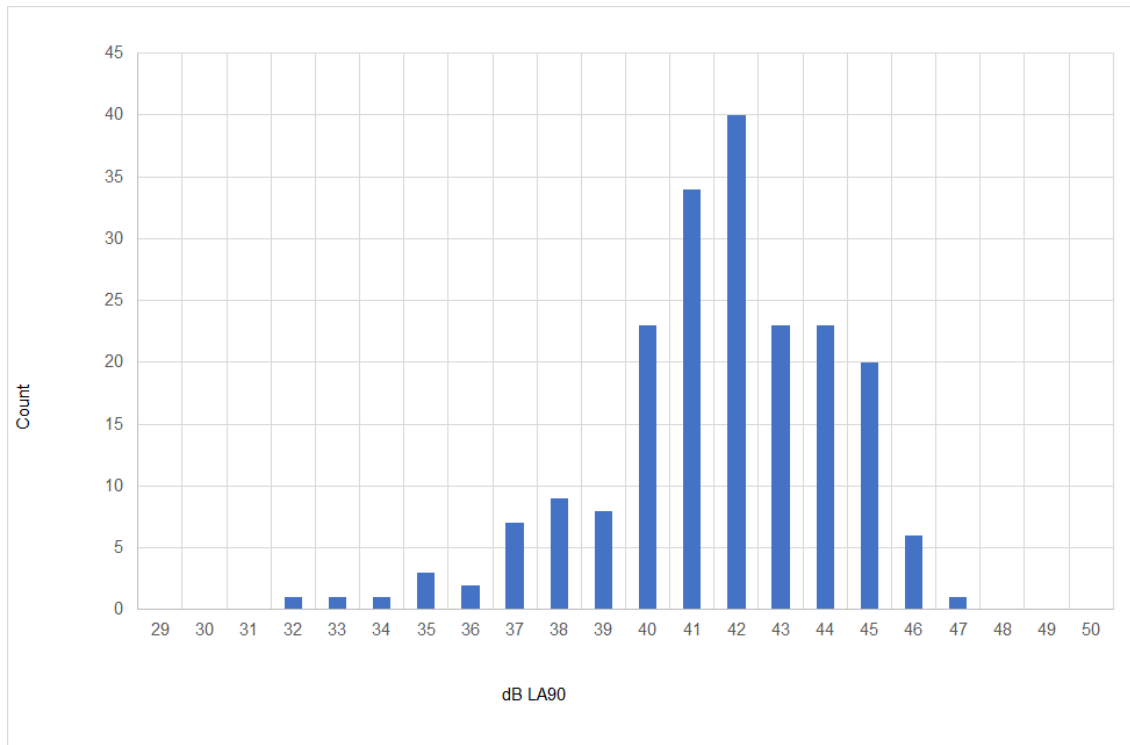


**Location 2 – In residential garden at Woodsome Park, near northeastern site boundary – Tuesday 04/03/2025 through Friday 07/03/2025**

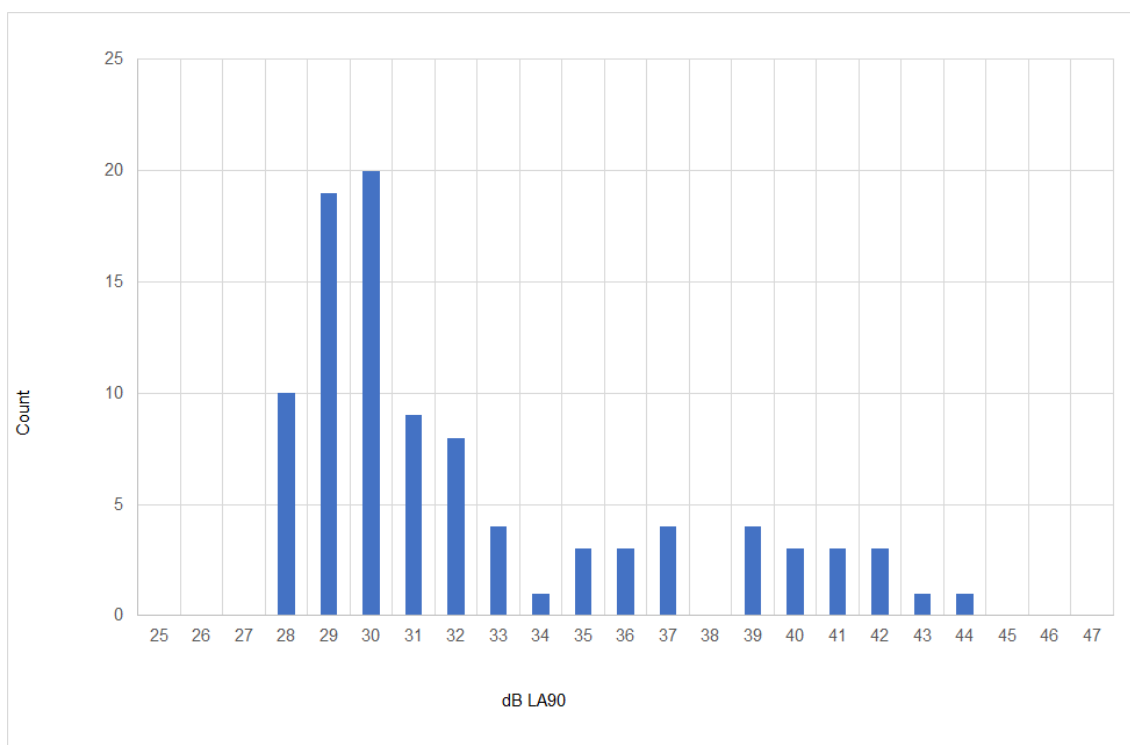
Rion NA-28 sound level meter (S/N 00501389). All values dB(A), free-field, 15-minute duration.



**Location 2 – Representative free-field background  $L_{A90}$  analysis – Daytime (0700-2300 hours)**  
 Representative background sound level = 42dB  $L_{A90}$ , with 44% of values being below this.

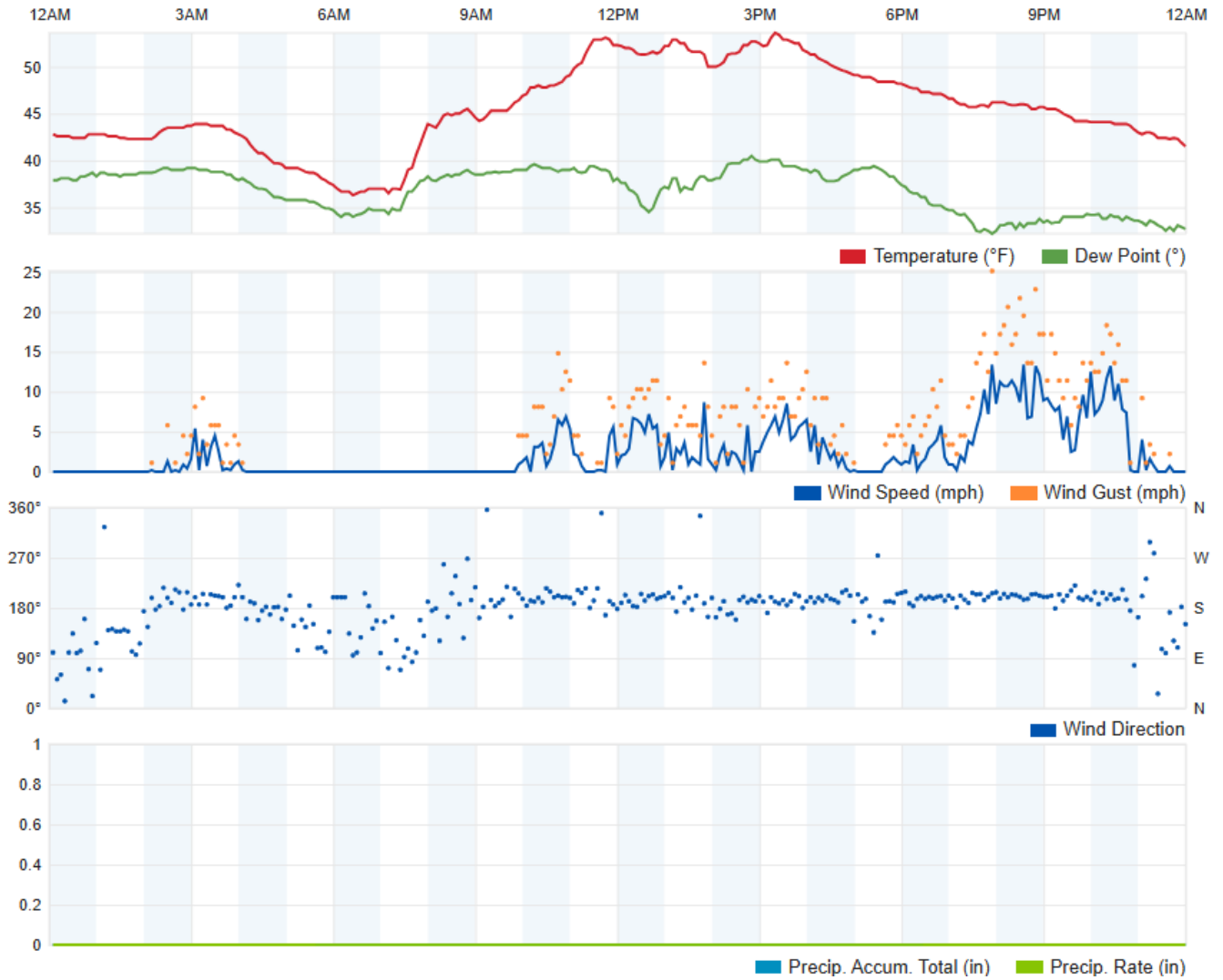


**Location 2 – Representative free-field background  $L_{A90}$  analysis – Nighttime (2300-0700 hours)**  
 Representative background sound level = 30dB  $L_{A90}$ , with 30% of values being below this.

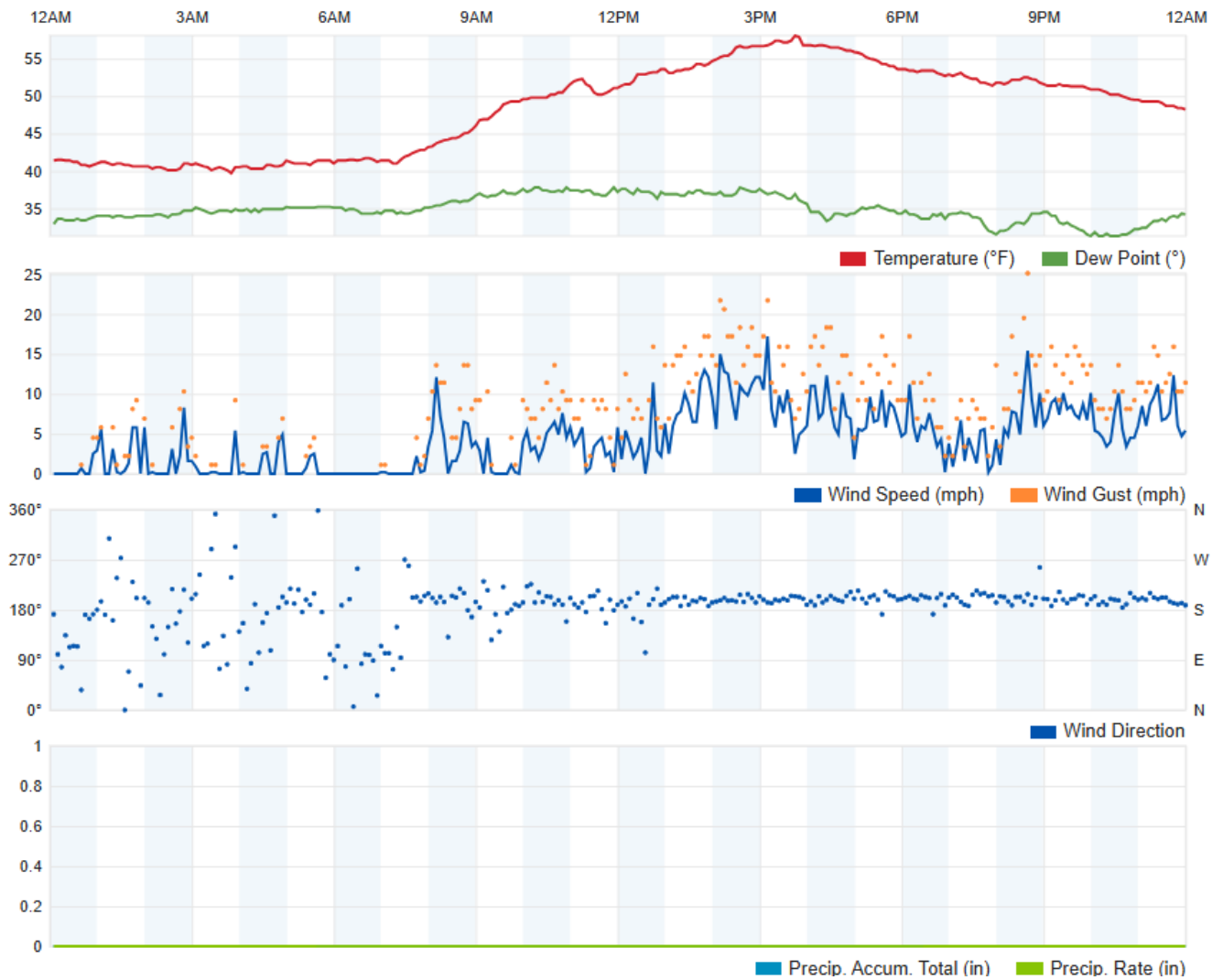


APPENDIX 3 – WEATHER DATA

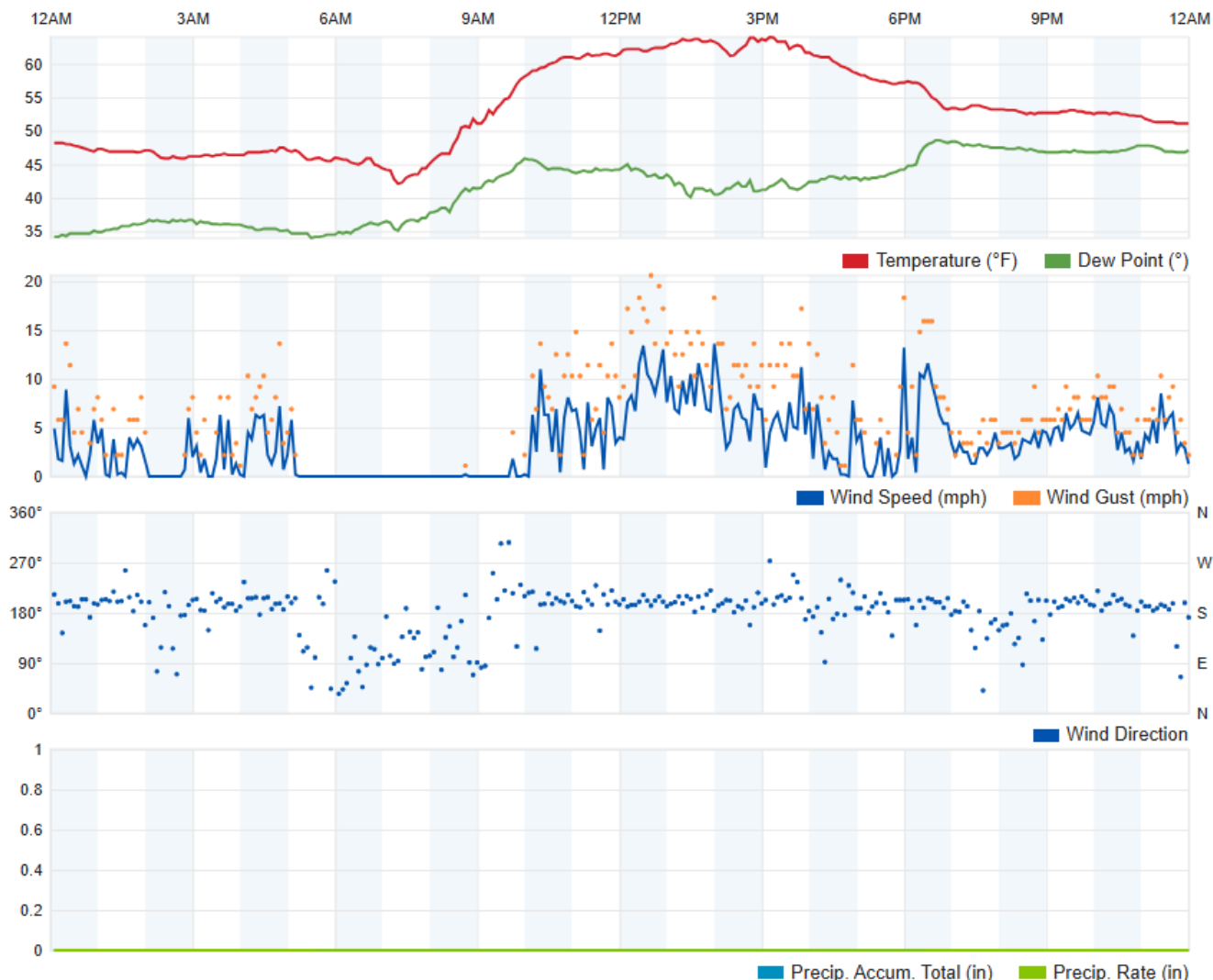
Tuesday 04/03/2025



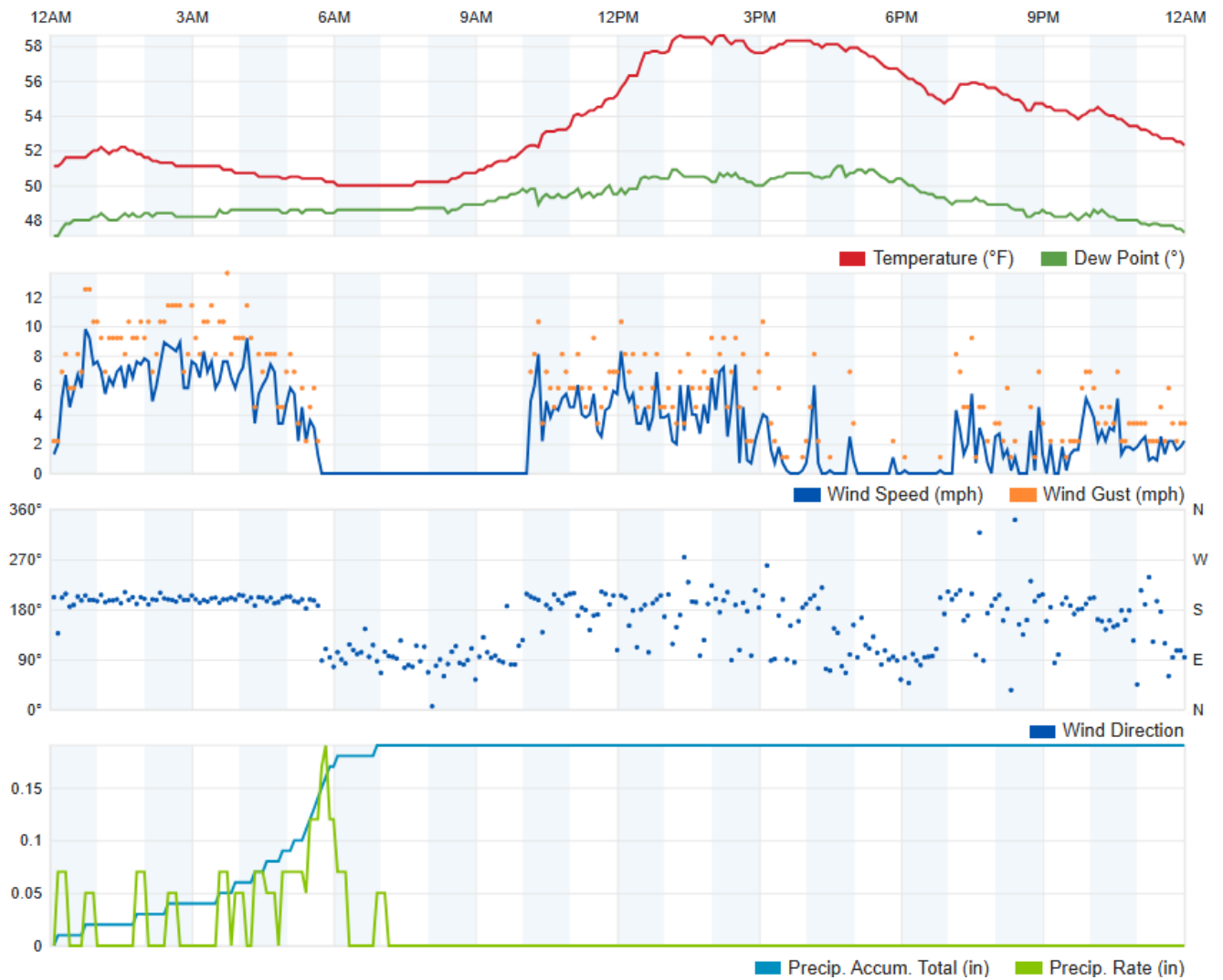
Wednesday 05/03/2025



Thursday 06/03/2025



Friday 07/03/2025



## APPENDIX 4 – ACOUSTIC MODEL PLOTS OF PREDICTED SOUND LEVEL SCENARIOS

AP4.1 The source sound levels used in the acoustic modelling are summarised in the following table.

**Table AT1 – Typical source sound level measurements**

Item	dB @ Octave band centre frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k
Extract grille, $L_w$	79.5	75.0	71.9	70.1	72.8	69.9	65.7	58.0
FLT, $L_w$	78.0	76.0	78.6	83.3	79.3	81.7	73.2	67.5
FLT reverse, $L_w$	74.8	69.8	68.3	70.9	71.6	82.9	87.5	55.7
Gate, $L_w$	69.2	65.0	66.2	66.6	71.0	76.1	73.4	51.3
Workshop, $L_{eq}$	73.0	75.0	72.0	71.0	71.0	69.0	69.0	67.0
Skip, $L_w$	81.3	90.6	92.1	89.4	88.2	86.0	82.1	74.9
CHP, $L_w$	63.0	66.0	66.0	58.0	56.0	56.0	56.0	56.0
Tool room, $L_{eq}$	58.0	62.2	65.4	68.2	66.0	62.6	56.3	52.1
HGV, $L_w$	87.1	79.8	76.5	76.9	79.3	78.3	71.9	64.6
Rod cell, $L_{eq}$	70.9	67.7	68.0	66.3	65.5	63.1	60.5	54.7
Clean lines, $L_{eq}$	61.3	60.2	63.8	63.0	62.8	62.1	65.1	54.2

AP4.2 The model plots presented below show predicted dB  $L_{Aeq}$  levels for different operating scenarios.

AP4.3 Daytime levels are plotted at 1.5m height and 4.0m height above local ground level to consider impact at living room windows and bedroom windows, respectively. Nighttime levels are plotted at 4.0m height above local ground level to consider impact at bedroom windows.

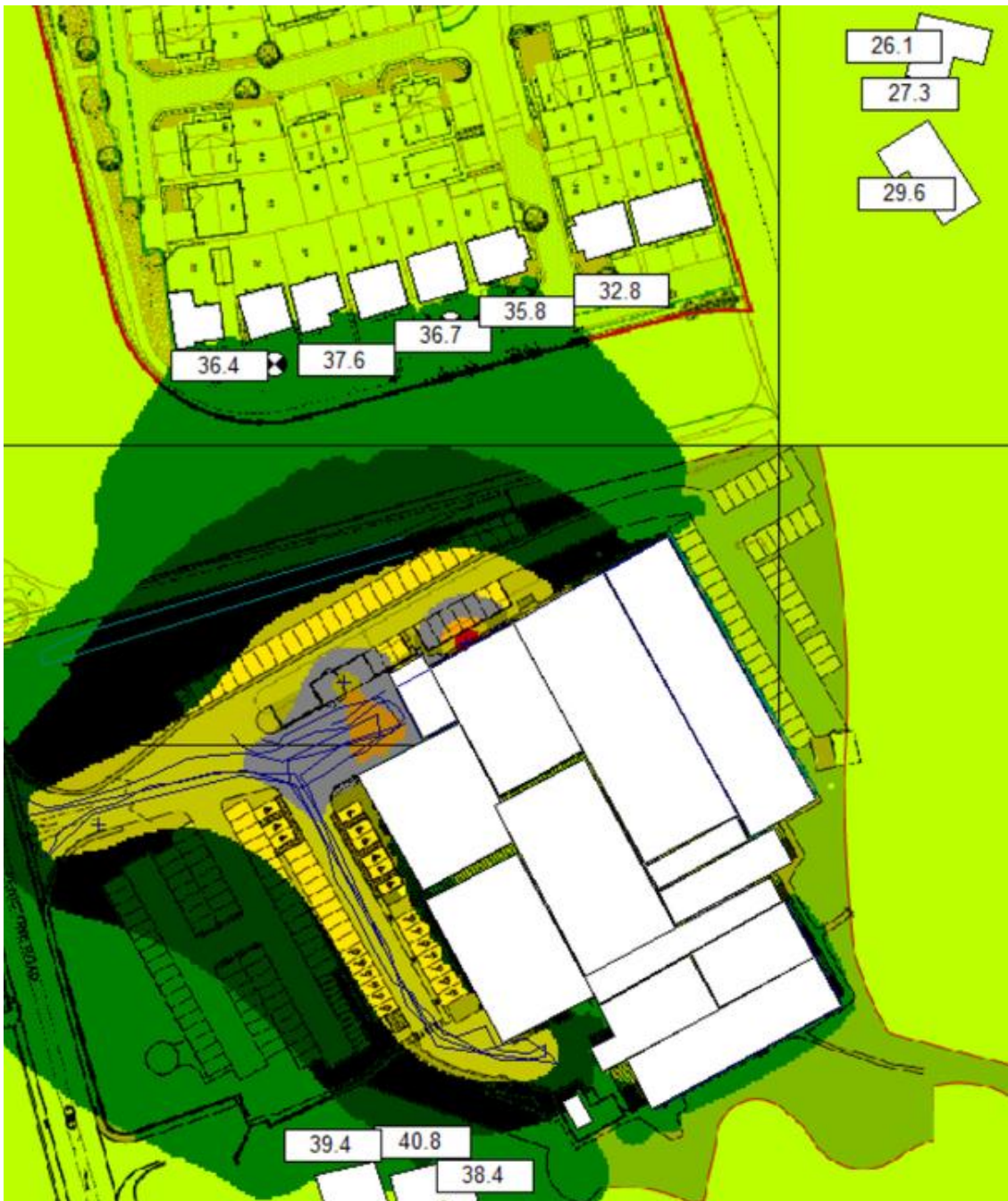
AP4.4 The sound level boxes at each residential receptor building on the model plots show the calculated sound levels at a point 4.0m from the building façade for each receptor, i.e. unaffected by reflections and representative of the sound level expected at the building facade.

AP4.5 Daytime levels are based on calculations over a 1-hour assessment period between 0700-2300 hours, nighttime levels are based on a 15-minute assessment period between 2300-0700 hours.

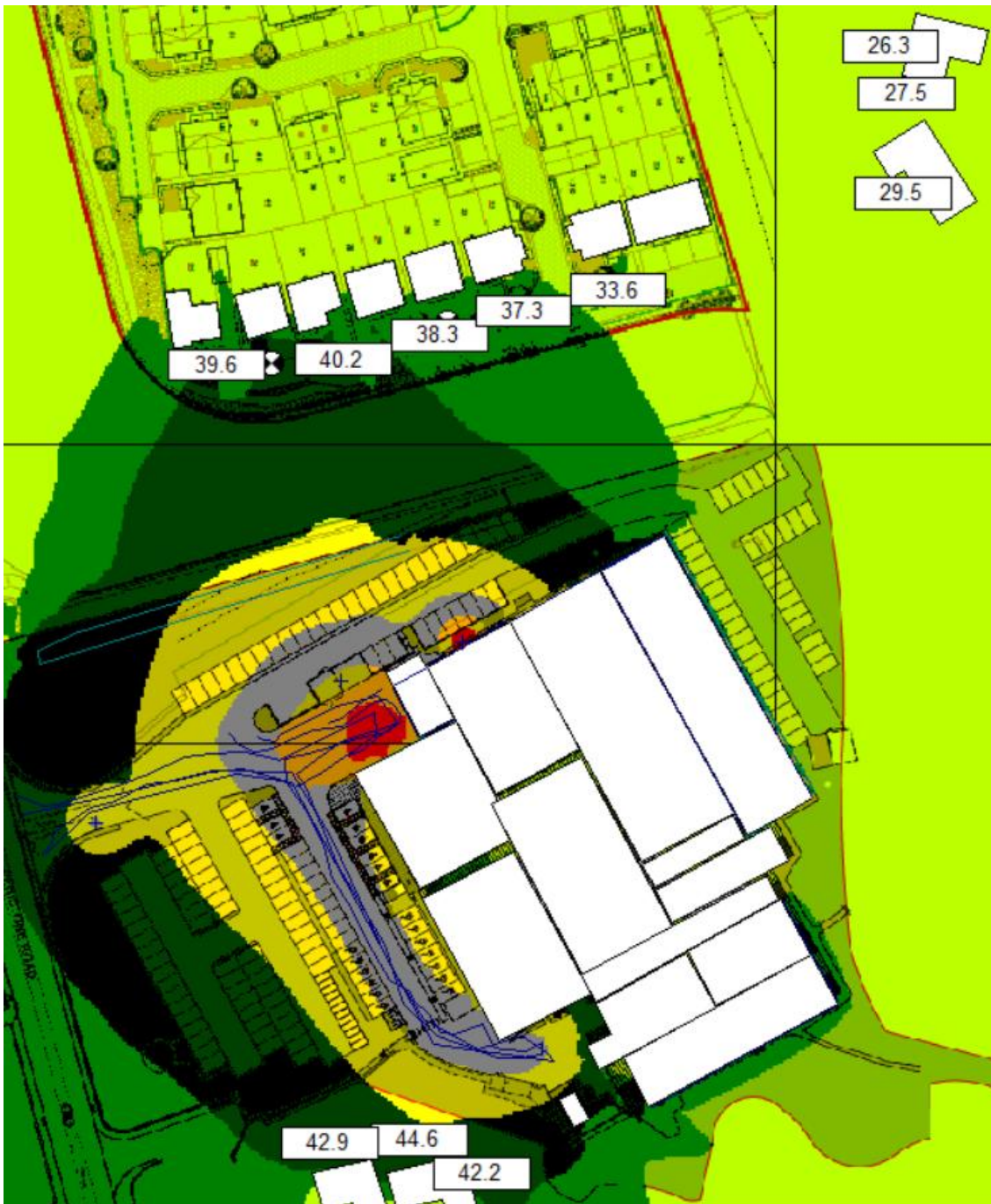
Plot 1: Daytime operation, all sources – 1.5m plot height



Plot 2: Daytime operation, all sources – 4.0m plot height



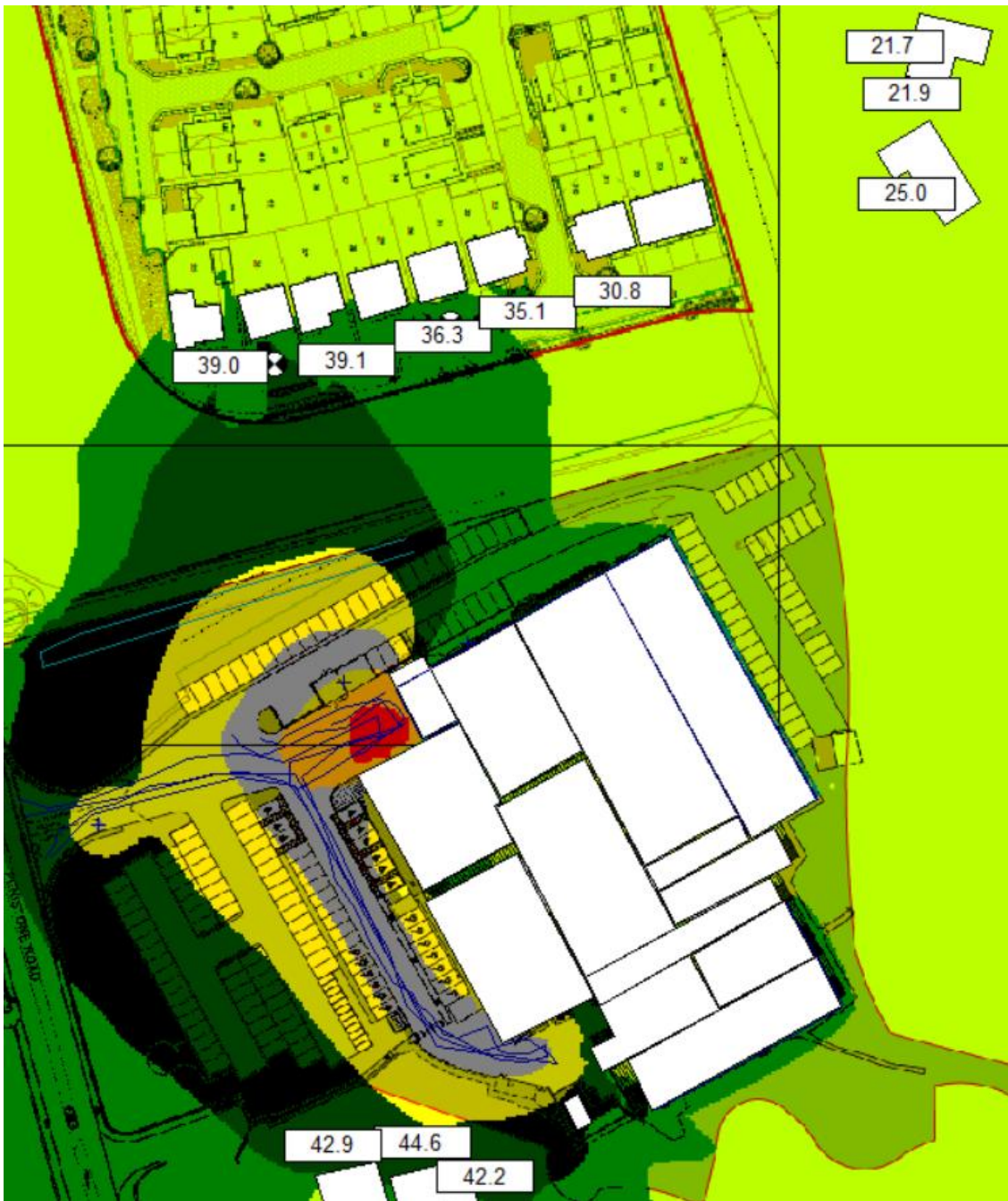
Plot 3: Scenario A – Nighttime operation, all sources – 4.0m plot height



Plot 4: Scenario B – Nighttime operation, no FLT operating – 4.0m plot height



Plot 5: Scenario C – Nighttime operation, no extract operating – 4.0m plot height



Plot 6: Scenario D – Nighttime operation, no FLT and no extract operating – 4.0m plot height

