Noise Assessment Report

Date of Measurements: 03/02/2026 **Date of Report:** 04/02/2026 **Prepared by:** Steve Irwin / Operations Director **Site:** Noxdown Ltd, York Road, Pocklington, YO42 1NS **Noise Source:** Area 3 — Blender / fixed machinery (not reducible at source)

1. Introduction

This report presents the results of a noise level survey carried out at [site name] to identify areas where noise levels may require action under the Control of Noise at Work Regulations 2005 (CNAWR 2005). Measurements were taken across nine areas of the site. The primary noise source is machinery located in Area 3, which has been confirmed as not capable of further noise reduction at source.

The machinery in Area 3 operates for approximately 4 hours per day; when switched off, noise levels across the site return to low ambient levels. During the machine's operating period, workers fall into two categories: those working in Area 5, and the machine operator who moves between several areas as part of their duties. Breaks are taken in a separate quiet building. This assessment covers both worker types.

This assessment forms part of the employer's duty under Regulation 5 of CNAWR 2005 to assess the risks to employees from noise at work.

2. Legal Framework

Regulation 4 of the Control of Noise at Work Regulations 2005 (S.I. 2005/1643) sets the following exposure thresholds based on daily personal noise exposure LEP,d (8-hour time-weighted average) and peak sound pressure level LCpeak:

Threshold	Daily Noise Exposure LEP,d	Peak Sound Pressure LCpeak	HPD Attenuation Counted?
Lower exposure action value	80 dB(A)	135 dB(C)	No
Upper exposure action value	85 dB(A)	137 dB(C)	No
Exposure limit value	87 dB(A)	140 dB(C)	Yes

Note: The lower and upper action values are assessed against noise exposure levels *without* hearing protection. The exposure limit value of 87 dB(A) is the only threshold that accounts for the noise reduction provided by hearing protection worn (Regulation 4(5)).

Key legal duties triggered by these thresholds:

- **At or above 80 dB(A) (lower action value): The employer shall;**

1. Assess and record noise risks under Regulation 5,
2. ensure that risk from the exposure of his employees to noise is either eliminated at source or, where this is not reasonably practicable, reduced to as low a level as is reasonably practicable under Regulation 6(1),
3. provide hearing protection (ear defenders) upon request under Regulation 7,
4. provide health surveillance (audiometric testing) under Regulation 9,

5. provide information and training on noise risks under Regulation 10..

- **At or above 85 dB(A) (upper action value):**

1. Implement a programme of organisational and technical measures to reduce exposure Regulation 6(2).
2. Hearing protection **must be provided** and its use enforced and hearing protection zones must be established and signed under Regulation 7.

- **At or above 87 dB(A) (limit value, after HPD):** Exposure must not exceed this level under any circumstances. This is the absolute limit on the noise reaching the worker's ears after hearing protection is accounted for.

Further guidance is available from HSE:

- HSE: Noise at Work — Regulations
- INDG362: Noise at Work — A Brief Guide to Controlling the Risks

3. Measurement Details

3.1 Equipment

Measurements were carried out using a **Martindale SP79** integrating sound level meter, classified as **IEC Class 2** under BS EN 61672. Class 2 instruments carry a measurement uncertainty of **±1.5 dB** under reference conditions. This classification is suitable for screening surveys and preliminary assessments. Where a formal enforcement-standard assessment is required, a **Class 1** instrument (±0.7 dB uncertainty) should be used.

3.2 Procedure

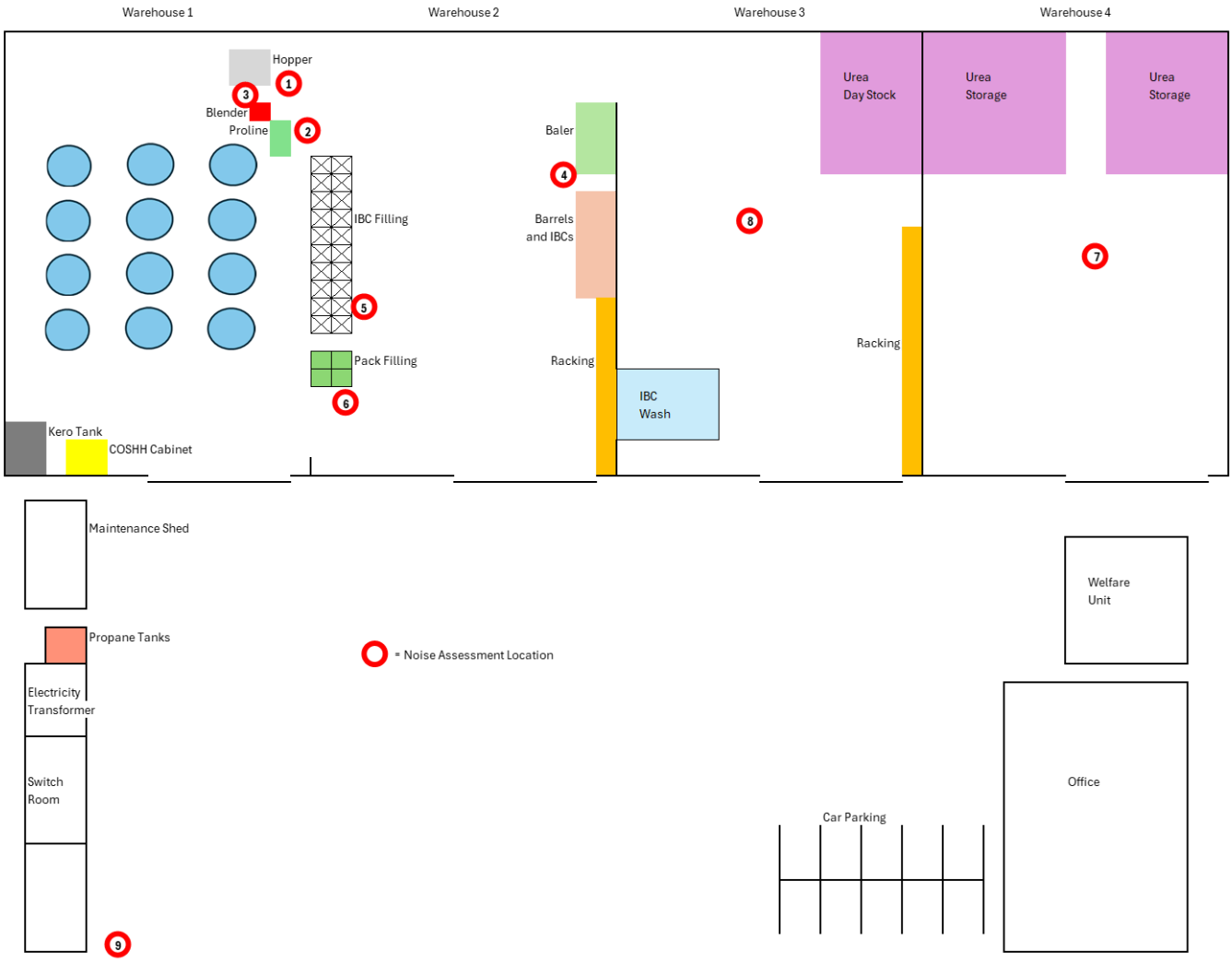
At each of the nine measurement locations, the sound level meter was operated over a continuous **5-minute period**. The minimum and maximum instantaneous values were recorded for A-weighted (dB(A)) readings. The measurement was then repeated to record the minimum and maximum instantaneous values for C-weighted (dB(C)) readings.

3.3 Limitations

1. **Short-duration snapshots.** The HSE action and limit values are based on 8-hour time-weighted average exposure (LEP,d). The 5-minute measurements in this report are not equivalent to LEP,d. Section 5.2 estimates likely 8-hour TWA doses using reported working patterns, but these should be regarded as indicative only.
2. **Min/max, not Leq.** Only the minimum and maximum levels during each 5-minute period were recorded; the equivalent continuous level (Leq) over the measurement period was not captured. The dose estimates in Section 5.2 therefore use maximum levels, producing a conservative (worst-case) result.
3. **Measurement uncertainty.** Actual noise levels may be up to 1.5 dB higher than recorded values due to the Class 2 instrument tolerance.
4. **Representative conditions.** Noise levels may vary with machinery loading, production schedules, or other operational factors. The measurements represent conditions at the time of survey only.

4. Measurement Results

The following table presents the recorded noise levels at each of the nine survey locations shown on schematic map. All values are in dB.



Area	dB(A) Min	dB(A) Max	dB(C) Min	dB(C) Max
1	84.7	87.4	84.5	91.8
2	80.2	88.1	86.9	90.9
3	82.1	91.9	89.5	98.7
4	79.0	82.0	81.6	85.0
5	78.4	80.8	78.3	84.5
6	70.4	77.3	75.4	80.0
7	58.1	74.4	61.7	82.3
8	64.2	68.8	68.0	83.3
9	56.8	64.1	65.1	84.2

Area 3 is the location of the primary noise source (fixed machinery).

5. Analysis

5.1 Instantaneous Levels — Comparison to Action Values

The maximum measured dB(A) at each location is compared below against the lower action value (80 dB(A)) and the upper action value (85 dB(A)). The possible upper bound of each measurement, accounting for the ±1.5 dB Class 2 uncertainty, is also shown.

Area	dB(A) Max Measured	Upper Bound (+1.5 dB)	≥ 80 dB(A)?	≥ 85 dB(A)?
1	87.4	88.9	Yes	Yes
2	88.1	89.6	Yes	Yes
3	91.9	93.4	Yes	Yes
4	82.0	83.5	Yes	No
5	80.8	82.3	Yes	No
6	77.3	78.8	No	No
7	74.4	75.9	No	No
8	68.8	70.3	No	No
9	64.1	65.6	No	No

- **Areas 1–5** exceed the lower exposure action value of 80 dB(A).
- **Areas 1–3** exceed the upper exposure action value of 85 dB(A).

5.2 Estimated 8-Hour Time-Weighted Average (TWA) Dose

The regulations assess exposure on the basis of LEP,d — the equivalent continuous noise level over an 8-hour working day. Two worker types have been assessed based on the reported working pattern: the **machine operator** and the **Area 5 worker**. Both work in quieter areas after the machine shuts down, and take breaks in a separate quiet building.

Calculation method: Equal energy principle (3 dB doubling rule), as prescribed by the regulations:

> $LEP,d = 10 \times \log_{10} [\Sigma (t_i / T) \times 10^{(L_i/10)}]$
>
> where $T = 480$ minutes (8-hour shift), t_i = time spent at noise level L_i

Common assumptions:

- The machine operates for 4 hours (240 minutes) per day. When switched off, noise levels across the site return to low ambient levels (assumed 60 dB(A)).
- Remaining shift time after machine shutdown: 180 minutes of quiet work at 60 dB(A).
- Breaks: approximately 60 minutes total in a separate quiet building. With up to 3 workers conversing, break area noise is estimated at 65 dB(A).
- Maximum measured dB(A) values have been used for each area (worst-case basis).
- These estimates do not account for hearing protection.
- Time spent in area 3 has been over estimated to give a worst case value for LEP,d

Machine Operator

The machine operator's duties involve a repeating pattern during the 4-hour operating period. Areas 1, 4, and 8 are visited on every load; Areas 2 and 3 are visited as brief pass-throughs once every three loads. The times per load are:

Area	Time per load	Action
1	4 min	Loading the hopper with Urea
2	—	Checking the Proline screen (pass through ~15 sec)
3	—	Checking the urea intake (pass through ~15 sec)
4	1.5 min	Moving urea and breaking bags
8	0.75 min	Picking up urea from WH3

One three-load group therefore takes approximately 19.25 minutes: two loads of 6.25 minutes each (Areas 1, 4, and 8 only) and one load of 6.75 minutes (which includes the pass-throughs of Areas 2 and 3). Over the 240-minute operating period this gives approximately 12 complete three-load groups with the following total time breakdown:

Location	dB(A) Max	Total Time	Fraction of 8-hr shift
Area 1	87.4	150 min	0.313
Area 2	88.1	3 min	0.006
Area 3	91.9	3 min	0.006
Area 4	82.0	56 min	0.117
Area 8	68.8	28 min	0.058
Quiet work (machine off)	60	180 min	0.375
Breaks	65	60 min	0.125

Estimated LEP,d (Machine Operator): 83.1 dB(A)

This exceeds the lower action value of 80 dB(A) but is below the upper action value of 85 dB(A), with a margin of 1.9 dB. The dominant contributor to LEP,d is Area 1, where the operator spends approximately 62% of the noisy operating period. Plausible variation in the pattern — for example, the pass-through of Areas 2 and 3 occurring every second or every fourth load rather than every third — changes the result by less than 0.2 dB; the conclusion holds robustly across all scenarios. Formal dosimetry is not considered necessary at this time due to the maximum values used in the calculation giving a worst case LEV,d, and the result still being less than the ±1.5 dB Class 2 measurement uncertainty.

IBC Fill (Area 5 worker)

The Area 5 worker remains in Area 5 for the duration of the machine's 4-hour operating period, then moves to a quieter area for the remainder of the shift. This is to give a worst case value for this role, in reality it is unlikely someone will be filling IBC's for the duration of the blending process.

Location	dB(A) Max	Total Time	Fraction of 8-hr shift
Area 5	80.8	240 min	0.500
Quiet work (machine off)	60	180 min	0.375
Breaks	65	60 min	0.125

Estimated LEP,d (Area 5 Worker): 77.8 dB(A)

This is below the lower action value of 80 dB(A). Even accounting for the ±1.5 dB Class 2 measurement uncertainty on the Area 5 reading (raising the level to a maximum of 82.3 dB(A)), the resulting LEP,d would be approximately 79.3 dB(A) — still below the lower action value.

5.3 Peak Sound Pressure Levels

The highest measured dB(C) value across all areas is **98.7 dB(C) in Area 3**. This is well below the lower peak sound pressure action value of **135 dB(C)** and the peak limit value of **140 dB(C)**.

No action is required with respect to peak sound pressure levels.

5.4 Low-Frequency Content

A significant difference between dB(C) and dB(A) maximum readings is observed in the more distant areas from the noise source:

Area	dB(A) Max	dB(C) Max	dB(C) − dB(A)
7	74.4	82.3	7.9
8	68.8	83.3	14.5
9	64.1	84.2	20.1

A-weighting attenuates low frequencies; C-weighting provides a flatter frequency response. A large dB(C)–dB(A) difference therefore indicates **significant low-frequency noise content**. This would also be consistent with low-frequency noise generated by machinery in Area 3 propagating through the building structure, however it was noted that fork lift trucks were operating in area 8 and haulage trucks were arriving in area 9.

Low-frequency noise attenuates poorly with distance and is resistant to conventional acoustic barriers. This must be taken into account when selecting engineering controls (see Section 7.2).

6. Findings Summary

1. **Machine operator:** Estimated LEP,d of **83.1 dB(A)**, which exceeds the lower action value of 80 dB(A). This is below the upper action value of 85 dB(A), with a margin of 1.9 dB. The duties triggered at the lower action value apply to this worker type.
2. **IBC Fill (Area 5 worker):** Estimated LEP,d of **77.8 dB(A)**, which is below the lower action value of 80 dB(A). No exposure action value duties are triggered at this level. The instantaneous maximum recorded in Area 5 (80.8 dB(A)) does briefly exceed 80 dB(A), but this does not affect the 8-hour TWA assessment.
3. The upper action value of 85 dB(A) is **not exceeded** by either worker type based on these estimates. The mandatory noise reduction programme (Regulation 6) and mandatory HPD enforcement duties are therefore not triggered at this stage. The machine operator's estimated LEP,d of 83.1 dB(A) is 1.9 dB below this threshold.
4. **Peak sound pressure levels are well within limits** across all areas. No action is required for peaks.
5. **Significant low-frequency noise propagation** is occurring from Area 3 into more distant areas, as evidenced by elevated dB(C) readings in Areas 7–9. This should be considered if engineering controls are pursued.
6. The noise source in Area 3 is confirmed as not reducible at source. The current working pattern limits time in the highest-noise areas (Areas 2 and 3) to brief pass-throughs once every three loads. This is effective. The operator

spends approximately 62% of the noisy operating period in Area 1 (87.4 dB(A) max), which remains the dominant contributor to LEP,d. The resulting margin below the upper action value is 1.9 dB.

7. Recommendations

The following recommendations address the legal duties triggered by the findings and include good-practice measures where appropriate. Recommendations are grouped by the hierarchy of controls. Elimination and substitution of the noise source are not applicable, as the machinery in Area 3 cannot be made quieter.

Compliance position summary: The machine operator's estimated exposure of 83.1 dB(A) exceeds the lower action value, triggering duties under;

- Regulation 5 (assessment and record keeping),
- Regulation 7 (hearing protection availability),
- Regulation 9 (health surveillance) and
- Regulation 10 Provide information, instruction and training

The upper action value of 85 dB(A) is not exceeded based on these estimates, so the mandatory noise reduction programme under Regulation 6 and mandatory Hearing Protection Devices (HPD) enforcement under Regulation 7(2) are not triggered at this stage. The margin below the upper action value is 1.9 dB.

The Area 5 worker's estimated exposure is below the lower action value; no specific regulatory duties are triggered for this role at the current estimated level, though this should be confirmed by formal dosimetry.

7.1 Engineering Controls — Noise Reduction in Area 1

The employer has a duty under Regulation 6 to reduce noise exposure so far as reasonably practicable (SFAIRP), regardless of whether the upper action value is exceeded. The machine operator spends approximately **62% of the 4-hour noisy period in Area 1**, which is the dominant contributor to their estimated LEP,d. Reducing noise levels in Area 1 is therefore the single most effective engineering measure available.

Options to investigate:

- **Sound-absorbing treatment** in Area 1 (e.g. acoustic ceiling panels, wall-mounted absorbers) to reduce reflected noise and lower the ambient level.
- **Acoustic barriers or screens** between Area 1 and the noise source. Note: the significant low-frequency content identified in Section 5.4 means lightweight barriers are unlikely to be effective — heavier barriers or specialist low-frequency absorption may be needed.
- **Acoustic treatment of the propagation path** between Areas 3 and 1, if the physical layout permits.

An acoustic specialist should be consulted if low-frequency noise control is to be addressed effectively.

7.2 Administrative Controls

The current working pattern limits time in the highest-noise areas (Areas 2 and 3) to brief pass-throughs once every three loads. This is effective in keeping the machine operator below the upper action value, with a margin of 1.9 dB. To maintain and, if possible, improve this position:

- **Formalise and document the current working pattern** so that it is maintained consistently and is not altered on an ad hoc basis.
- **Ensure no worker spends extended periods in Areas 2 or 3.** If operational requirements change, this noise assessment must be reviewed before any change to the pattern is implemented.
- **Restrict access** to Areas 1–3 to those workers who require it for their duties.

- **Review the balance between Areas 1 and 4/8.** The operator currently spends approximately 62% of the noisy period in Area 1 (87.4 dB(A) max), 23% in Area 4 (82.0 dB(A) max), and 12% in Area 8 (68.8 dB(A) max). If operational duties allow more time in the quieter areas, this would reduce the estimated LEP,d and increase the margin below the upper action value.

7.3 Hearing Protection

Machine operator (LEP,d above lower action value): Hearing protection **must be made available** under Regulation 7. The operator spends significant time in Area 1 where maximum measured levels reach 87.4 dB(A), so use of hearing protection in Areas 1, 2, and 3 should be strongly encouraged.

Area 5 worker (LEP,d below lower action value): Hearing protection is not a legal requirement at the current estimated exposure level. It is, however, good practice to make it available, given that instantaneous levels in Area 5 briefly exceed 80 dB(A).

Selection requirements:

- Hearing protection should be suitable for the noise spectrum present. Given the low-frequency content identified in Section 5.4, ear muffs with adequate low-frequency attenuation should be considered.
- Workers must be instructed on correct fitting and use.

7.4 Health Surveillance

Regulation 9 requires health surveillance where employees are likely to be regularly exposed at or above the lower action value of 80 dB(A).

Machine operator: Must be enrolled in a health surveillance programme, comprising:

- A **baseline audiometric test** at or before the start of regular exposure.
- **Annual audiometric testing** thereafter.
- Records kept for the duration of employment and for **40 years** after employment ends.

Area 5 worker: Health surveillance is not required at the current estimated LEP,d of 77.8 dB(A).

7.5 Information, Training, and Signage

- According to Regulation 10 the machine operator and any worker who may enter Areas 1–5 must receive **information and training** on the health effects of noise-induced hearing loss and tinnitus, the controls in place, and the correct use of any hearing protection provided. Delivery of this training must be documented.
- **Noise warning signs** should be displayed at entry points to Areas 1–3 to indicate elevated noise levels and the availability of hearing protection.

8. Review

This noise assessment should be reviewed and updated:

- Following implementation of any engineering or administrative controls, to verify their effectiveness;
- If there is any change to the machinery, site layout, or working patterns;
- At a minimum interval of **every 5 years**, in the absence of other changes.

This assessment was conducted using a Martindale SP79 Class 2 integrating sound level meter. The screening measurements presented here are sufficient to identify the need for action and to guide interim measures. A formal

noise dose assessment using full-shift personal dosimetry and, where indicated, a Class 1 instrument is recommended to confirm actual worker exposures and to satisfy the documentation requirements of Regulation 5(6) of CNAWR 2005.

References

- The Control of Noise at Work Regulations 2005 (S.I. 2005/1643) — Regulation 4: Exposure limit values and action values
- HSE: Noise at Work — Regulations
- INDG362: Noise at Work — A Brief Guide to Controlling the Risks