



Dust and Air Quality Innovation and Expertise

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Quarterly non-technical summary: Mountsorrel Quarry particulate matter, dust and weather monitoring

Date range: Quarter 4 2025 (25 September – 17 December 2025)

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Introduction

Every month, the results of dust and particulate matter monitoring at Mountsorrel Quarry are compiled and summarised in compliance reports, which are then shared with Charnwood Borough Council (CBC), Leicestershire County Council (LCC) and the Environment Agency. The monitoring results are discussed in more detail during Technical Liaison meetings held with CBC and LCC on a quarterly basis.

Once the quarterly liaison meetings are held, we prepare a cover letter to provide a non-technical overview of the most recent three months of finalised reports. This letter covers the period from 25 September – 17 December 2025.

An explanation of how and why dust and air quality are measured at Mountsorrel Quarry is available [here](#).

The format and focus of the compliance reports have been agreed with CBC and LCC. In addition to presenting PM₁₀ and PM_{2.5} data from both on-site monitors, emphasis is being placed on the frequency of short-term PM₁₀ alerts sent to quarry management, the investigations triggered by the alerts and the changes to on-site processes to minimise dust.

The general air quality of the surrounding area is assessed by comparing the particulate matter concentrations recorded by CBC at the southern end of Hawcliffe Road against the relevant Air Quality Objectives (AQOs). Data from a Defra Automatic Urban and Rural Network (AURN) monitoring station at Leicester University are also presented for reference.

Weather summary

As would be expected, this quarter saw a return of cooler conditions, although somewhat unusually it remained very dry throughout October and early to mid-November. Late November and early December saw considerable rainfall and a sharp drop in temperature, before drier, less cold conditions in mid-December.

During October, winds were mainly recorded from the southeast, south and west, whilst from November onwards, the winds were primarily recorded from the south. This would have resulted in the potential for dust propagation towards the northwest, north and east during October, and towards the north during November and December.

Deposited dust

During this period, deposited dust levels were below the site-specific threshold level at all locations, despite the very dry conditions recorded.

The frequency of threshold level exceedances over the previous quarter is shown for each monitoring location in Figure 1 using pie charts.



Figure 1: Frequency of high dust levels, Quarter 4 2025

Particulate Matter

On-site PM_{2.5}

PM_{2.5} concentrations at Quorn House had a period average of 5.7 µg/m³, with the PM_{2.5} concentrations at Hawcliffe Road being slightly higher with a period average of 7.3 µg/m³ (Figure 2).



Figure 2: PM_{2.5} monitoring summary, Quarter 4 2025

Off-site PM_{2.5}

As shown in Figure 3, the period average PM_{2.5} concentrations recorded at the CBC monitoring station at the southern end of Hawcliffe Road was 6.2 µg/m³ or 52% of the interim target value for PM_{2.5} (12 µg/m³ as an annual average). The period average concentration at the Leicester University AURN monitoring station was similar, at 6.0 µg/m³ or 50% of the interim target value.

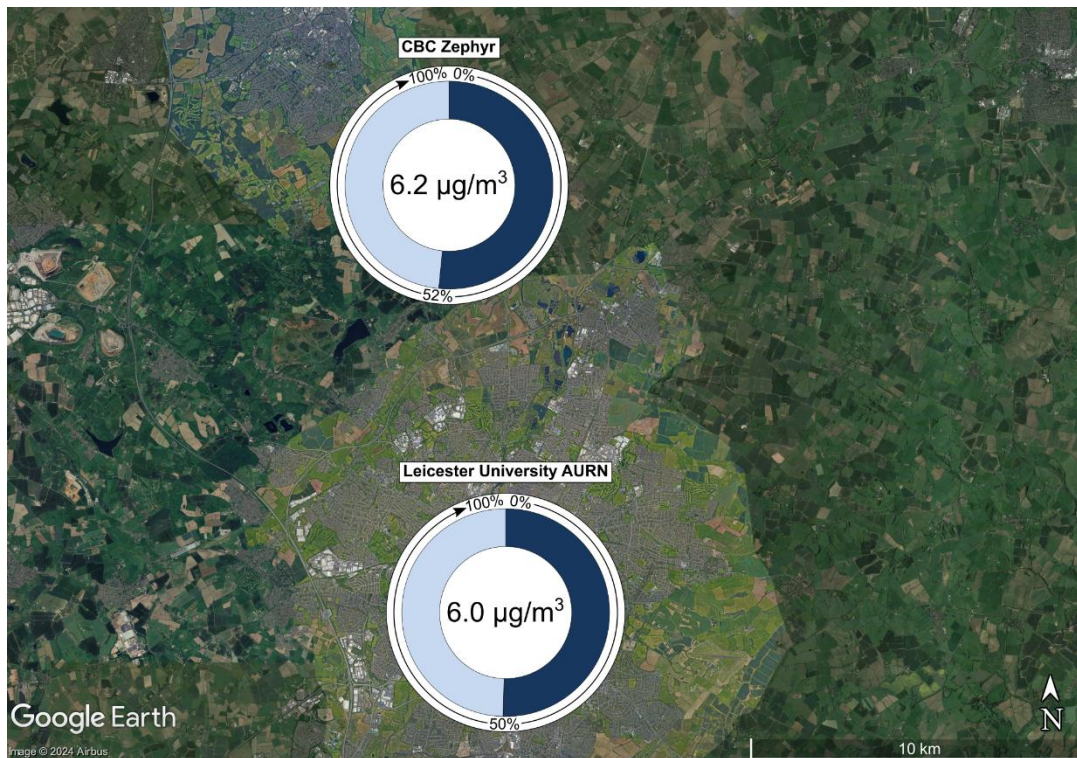


Figure 3: PM_{2.5} monitoring summary, CBC and AURN monitoring stations, Quarter 4 2025

On-site PM₁₀

PM₁₀ concentrations recorded at Quorn House had a period average of 8.7 µg/m³ for this period, with the period average being 12.8 µg/m³ at Hawcliffe Road.

The short-term PM₁₀ trigger level (125 µg/m³ over a 15-minute period) was exceeded on 14 occasions during this quarter at Hawcliffe Road and once at Quorn House; details of the resulting investigations can be found in the attached reports.



Figure 4: PM₁₀ monitoring summary, Quarter 4 2025

Off-site PM₁₀

As shown in Figure 5, PM₁₀ concentrations recorded at the CBC monitoring station at the southern end of Hawcliffe Road was 10.2 µg/m³ or 25% of the AQO (40 µg/m³). Concentrations at the Leicester University AURN monitoring station was similar, at 9.8 µg/m³ or 24% of the AQO.

No days with an average PM₁₀ concentration above 50 µg/m³ were recorded during this quarter.

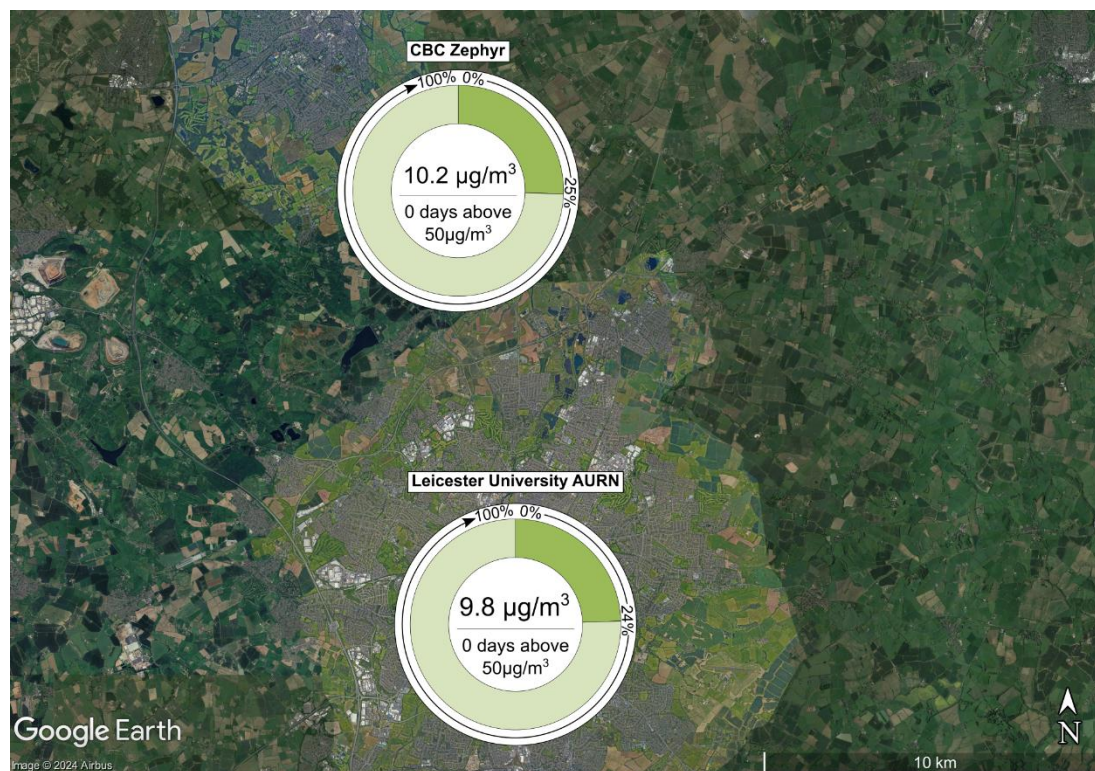


Figure 5: PM₁₀ monitoring summary, CBC and AURN monitoring stations, Quarter 4 2025

Complaints

Between 25 September – 17 December 2025, no dust complaints were received by the quarry. When complaints are received, the local councils are kept informed of any subsequent investigation and corrective measures taken. These are typically discussed in more detail during the quarterly environmental technical meetings held between Tarmac, external environmental consultants (such as DustScanAQ) and both Charnwood Borough Council and Leicestershire County Council.

DustScanAQ
February 2026



Dust, Particulate Matter and Weather Monitoring Report: October 2025

Mountsorrel Quarry

December, 2025

Tarmac



Document Control Sheet

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Disclaimer

This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

This report may include data obtained from trusted third-party consultants/laboratories that have been supplied to us in good faith. Whilst we do everything we can to ensure the quality of all the data we use, we cannot be held responsible for the accuracy or integrity of third-party data.

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1 Introduction

Mountsorrel Quarry has a comprehensive Dust Management and Monitoring Plan (DMMP). The DMMP was developed in 2011 and is subject to regular review and revision, in consultation between Tarmac and the local regulators (Leicestershire County Council (LCC) and Charnwood Borough Council (CBC)).

The DMMP is enacted through the quarry Site Improvement Plan (SIP). The SIP sets out a programme of actions to reduce the environmental impact of specific areas of the site operation, and is updated regularly by quarry management, with support from DustScanAQ through regular site visits and quarterly reviews with LCC and CBC.

Section 7.5 of the DMMP requires that a monthly summary and review of dust and particulate matter monitoring is prepared and circulated with LCC, CBC and the Environment Agency.

This report details the results of dust, particulate matter and weather monitoring around Mountsorrel Quarry during the period 25 September – 24 October 2025.

1.1 Report scope

The intention of this report is to summarise dust and particulate matter monitoring results for the given period and compare them against site-specific alert limits and thresholds. This report also details the results of any investigation carried out into elevated dust or particulate matter levels, as prompted by an exceedance of alert limits or thresholds.

1.2 Dust definitions

'Dust' is generally regarded as particulate matter up to 75 µm (micron) diameter and can be considered in two categories. Fine dust, essentially particles up to 10 µm, is commonly referred to as PM₁₀ and is measured to agreed standards and forms part of the national Air Quality Objectives (AQO). The AQO for PM₁₀ is currently 50 µg/m³ for the 24-hour mean, not to be exceeded 35 times per year and 40 µg/m³ for the annual mean. Particles up to 2.5 µm in diameter are referred to as PM_{2.5}. The interim target for PM_{2.5} is 12 µg/m³ for the annual mean (to be achieved by 2028), whilst the legal AQO for PM_{2.5} is 10 µg/m³ for the annual mean (to be achieved by 2040) as per The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023¹.

It may be noted that the above Regulations relate to average particle concentrations in Local Authority districts thus do not apply to any specific industrial or other operation, such as Mountsorrel Quarry, and are included for reference. Coarser dust (essentially particles greater than 10 µm) is generally regarded as 'nuisance dust' and can be associated with annoyance, although there are no official standards (such as AQO) for dust annoyance.

¹ Statutory Instrument. (2023), 'The Environmental Targets (Fine Particulate Matter) (England) Regulations', No. 96. King's Printer of Acts of Parliament

2 Sampler locations

As shown in Figure 2.1 and Table 2.1, dust, particulate matter and weather conditions are measured at a number of locations around site and the surrounding area:

- Directional and depositional dust: currently monitored at 13 locations;
- Particulate matter: currently monitored at two locations;
- Weather conditions: currently monitored at one location.

The majority of the dust samplers around Mountsorrel Quarry comprise the 'Frisbee-type' deposition gauge combined with an adhesive 'sticky pad' directional gauge. These samplers are used to monitor 'nuisance' dust and samples from these instruments are collected on a monthly basis.

For particulate matter, Turnkey Osiris samplers are located at Stn 9 (Hawcliffe Road) and at Stn 13 (Quorn House). These recognised and certificated 'indicative' real-time devices are connected to their own wind vane and anemometer and provide near-instantaneous directional PM₁₀, PM_{2.5} and PM₁ data directly to the quarry management team.

A weather station is located at the site offices off Wood Lane and collects a range of weather parameters over fifteen-minute intervals. Data from the weather station are available to the quarry management by means of a dedicated modem connection to the internet. Due to a malfunctioning battery, the station had been offline from 17 April; however, as of 08 October the device is now fully functional again.

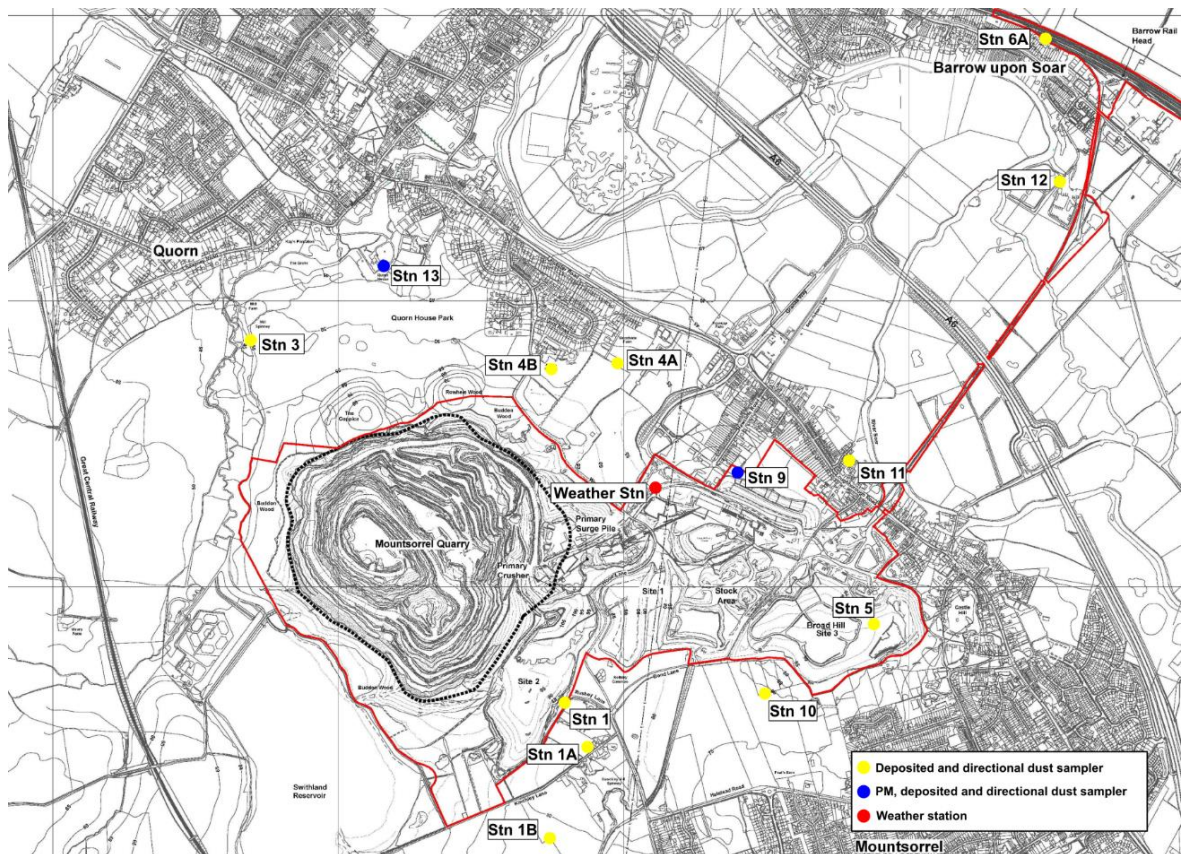


Figure 2.1: Particulate matter, dust and weather monitoring locations, Mountsorrel Quarry

Table 2.1: Particulate matter, dust and weather monitoring locations, Mountsorrel Quarry

Sampler reference	Easting	Northing	Locality monitored
Stn 1	456787	314586	Swithland Lane; Rushey Lane; Kinchley Lane
Stn 1A	456882	314449	Swithland Lane; Rushey Lane; Kinchley Lane
Stn 1B	456745	314112	Swithland Lane; Rushey Lane; Kinchley Lane
Stn 3	455685	315844	Mill Farm; Quorn House
Stn 4A	456966	315787	Woodside Farm; Leicester Road
Stn 4B	456732	315767	Quorn Grange, Unitt Road, Northage Close, Quorn Park
Stn 5	457872	314875	Bond Lane; Crown Lane
Stn 6A	458655	316785	Sileby Road; Huston Close; Sileby Road (commercial)
Stn 9 (inc. PM)	457374	315398	Hawcliffe Road
Stn 10	457509	314627	Glebe Close; Halstead Road (south); Halstead Road (north)

Sampler reference	Easting	Northing	Locality monitored
Stn 11	457835	315504	Loughborough Road; River Soar (marina / caravan park)
Stn 12	458551	316457	Meadow Farm Marina and Caravan Park
Stn 13 (incl. PM)	456154	316087	Northage Close, Meeting Street
Weather Station	457126	315376	Wood Lane Site Offices

Charnwood Borough Council (CBC) is responsible for the monitoring of air quality within the borough and prepares Air Quality Annual Status Reports (ASRs) for submission to Defra. It operates a Zephyr air quality monitor which is located within the Leicestershire County Council (LCC) depot at the southern end of Hawcliffe Road, in close proximity to the Osiris device at Stn 9. This device measures a number of pollutants including PM₁₀ and PM_{2.5}. The purpose of this monitoring is for CBC to compare measured concentrations against the relevant AQOs for these pollutants.

For additional context, the latest PM₁₀ and PM_{2.5} monitoring data from CBC are summarised in Appendix A and Appendix B, whilst a summary of the latest 12 months of data are provided in Appendix C for reference.

2.1 Alert thresholds and response procedures

To help the site reduce its impact on the surrounding area, a number of alert thresholds have been calculated, as outlined in Table 2.2.

Table 2.2: Alert thresholds

Pollutant	Threshold	Averaging period	Applies to
PM ₁₀	125 µg/m ³	15 minutes	Stn 9 (Hawcliffe Road), Stn 13 (Quorn House)
Deposited dust	125 mg/m ² /day	1 month	All deposited dust monitoring locations

For particulate matter (PM₁₀) an alert threshold of 125 µg/m³ for the 15-minute average has been in use for several years as a trigger limit for investigation to identify potential on-site issues.

Analysis of data from the site has demonstrated that PM₁₀ provides a stronger 'site signal' than PM_{2.5}. The purpose of alerts is to provide site managers with information regarding elevated PM₁₀ concentrations, allowing them to investigate and make operational changes if necessary. An alert threshold has therefore not been set for PM_{2.5} to prevent duplication.

PM₁₀ and PM_{2.5} concentrations recorded by CBC at the southern end of Hawcliffe Road and by Defra through the Automatic Urban and Rural Network (AURN) at Leicester University are presented in Appendix A and Appendix B respectively. Data from both locations have been compared against relevant Air Quality Objectives (AQOs) for PM₁₀ and PM_{2.5}.

For deposited dust, the DMMP sets out a site-wide deposited dust threshold of 125 mg/m²/day 'undissolved solids' as a trigger limit for investigation to identify the potential dust source/s, taking account of the directional data.

3 Results

3.1 Weather monitoring

Weather conditions can have a significant effect on the potential for dust propagation from a mineral site. Of particular importance are wind speeds, wind direction, and precipitation. Dust can be carried from a source towards receptors (such as nearby homes and other businesses) according to the strength and direction of wind. Precipitation is recognised to suppress dust and 0.2 mm antecedent rainfall is considered sufficient to suppress windblown dust for a number of hours.

The key weather data which might affect dust propagation (wind speed, wind direction, total daily precipitation and average daily temperature) for this reporting period are summarised in Figure 3.1 and Figure 3.2.

As mentioned in Section 2, due to a technical issue with the on-site weather station, site-specific weather data were not available between 25 September – 7 October. Temperature and precipitation data from a nearby Met Office WOW station in Mountsorrel² (approx. 1.9 km southeast) was used to supplement the missing data.

This monitoring period was generally mild, with a decrease in temperature towards the end of October. The maximum average daily temperature was 15.4 °C, recorded on 03 October 2025 and the minimum average daily temperature was 7.9 °C, recorded on 12 October. Precipitation was recorded on just 30 % of days during this period, with a 14-day dry period during October; this lack of precipitation may have increased the risk of dust propagation during this period.

During the first half of the monitoring period, as seen in Figure 3.2, winds were mostly calm to moderate in speed (>0.5 – 6 m/s), and were predominantly recorded from the south-southeast and south. This may have resulted in an increased potential for dust propagation to the north-northwest and north during 25 September – 08 October.

Between 08 – 24 October 2025, winds were mostly calm to moderate in speed (>0.5 – 6 m/s) and were predominately recorded from the west and east. This may have resulted in an increased potential for dust propagation in these directions during this period.

² <https://wow.metoffice.gov.uk/observations/details/20250911wg3ez3hxnwe9bk1dxusa4748xr>

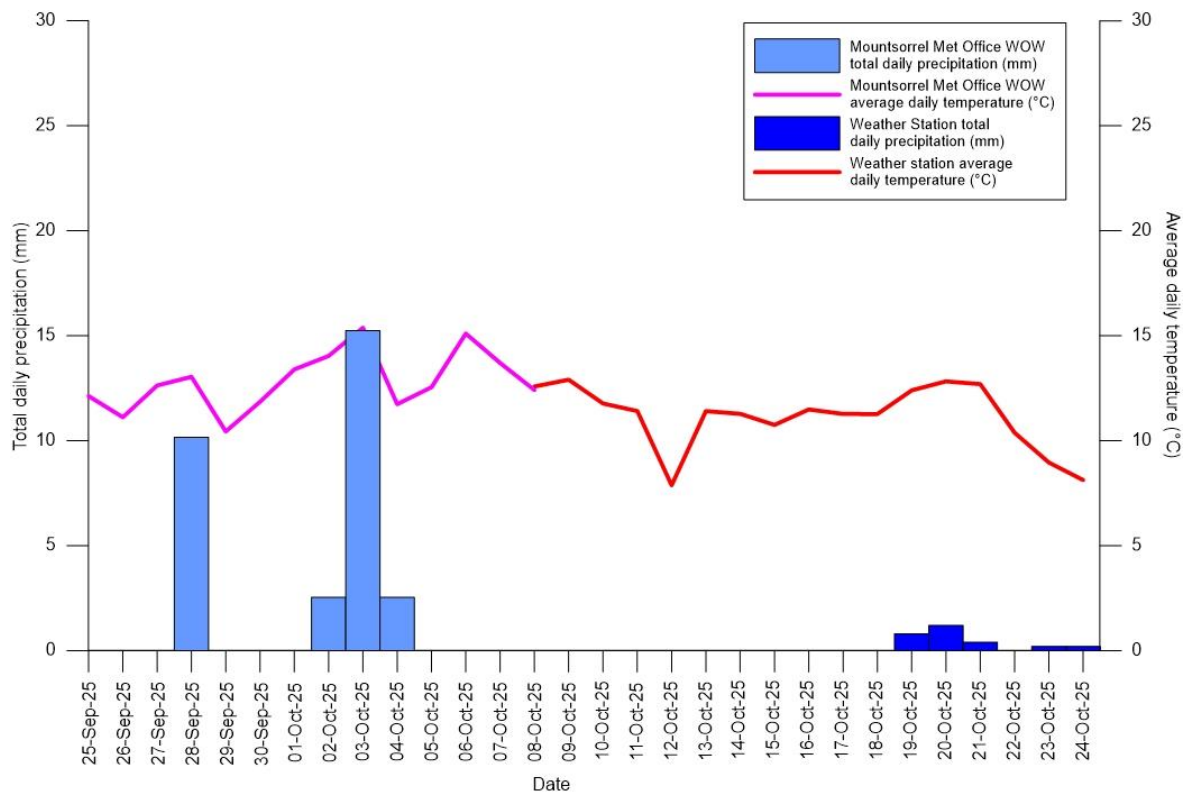


Figure 3.1: Total daily precipitation and average daily temperature, Mountsorrel Met Office WOW and Mountsorrel Quarry, 25 September – 24 October 2025

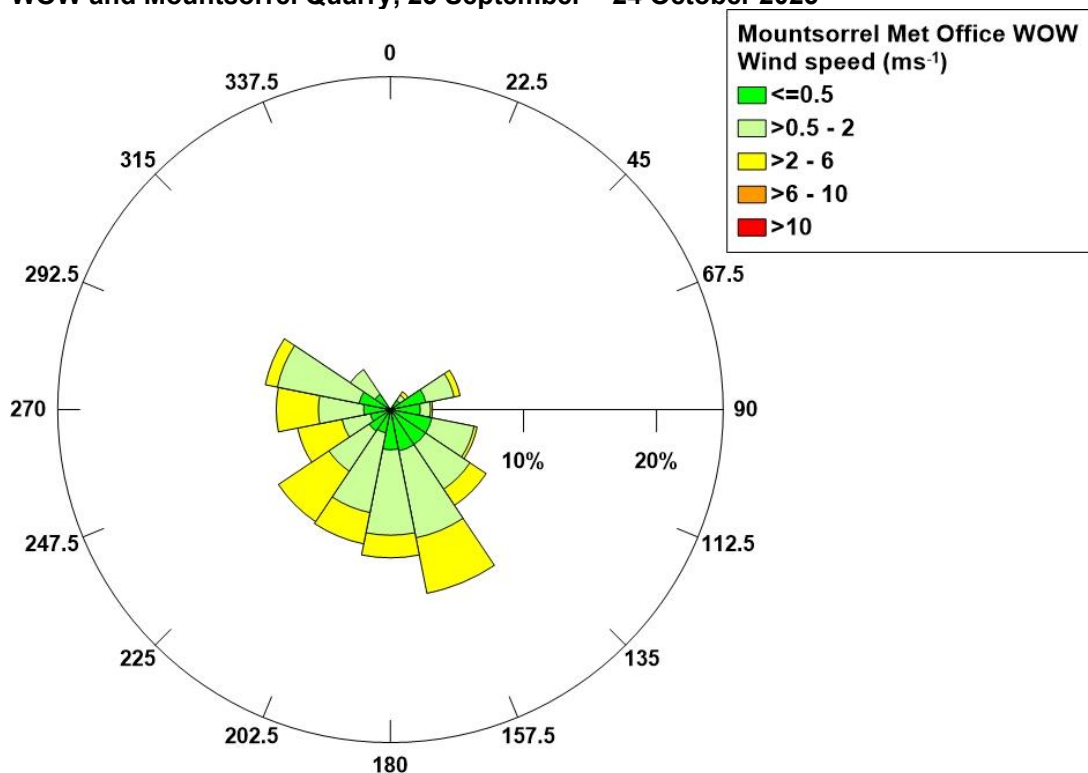


Figure 3.2: Wind rose, Mountsorrel Met Office WOW, 25 September – 08 October 2025.

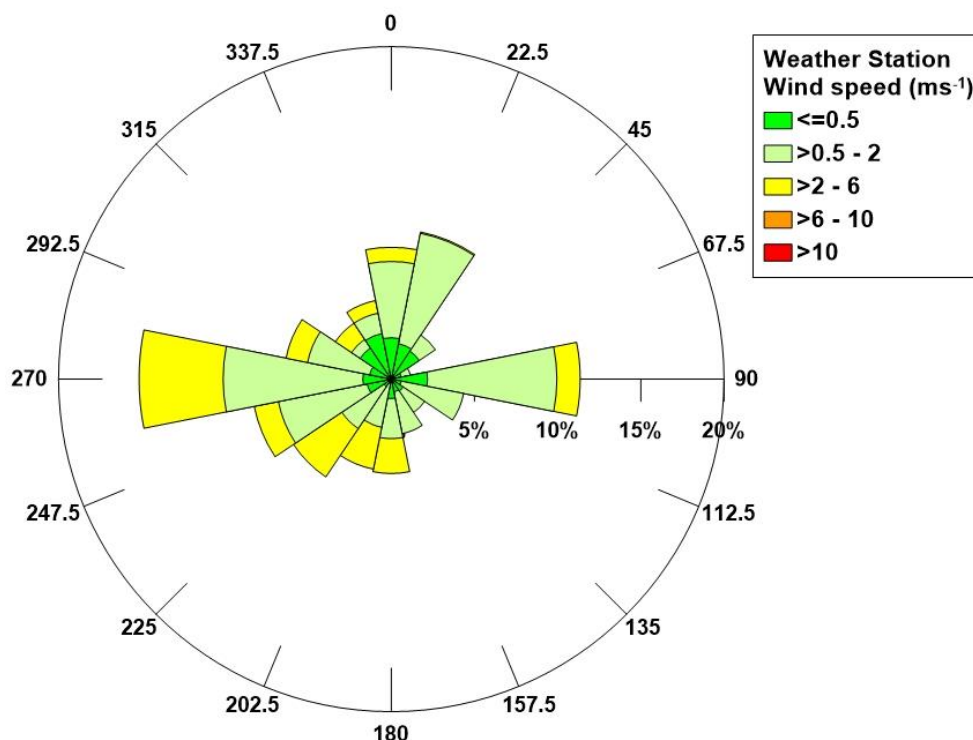


Figure 3.3: Wind rose, Mountsorrel Quarry, 08 October – 24 October 2025.

3.2 Particulate matter

3.2.1 PM₁₀

The available 15-minute data from the period of review are presented for both monitoring locations in Figure 3.5 and Figure 3.5 respectively. The red line denotes the site trigger level (125 µg/m³ over the 15-minute average), whilst the dashed black line denotes the average concentration recorded over this period. Due to a technical issue, no PM₁₀ data were available from the Hawcliffe Road sampler for two periods: 25 – 26 September and 04 – 07 October 2025.

Additional PM₁₀ monitoring data (collected by CBC and the Defra AURN monitoring network) are provided in Appendix A.

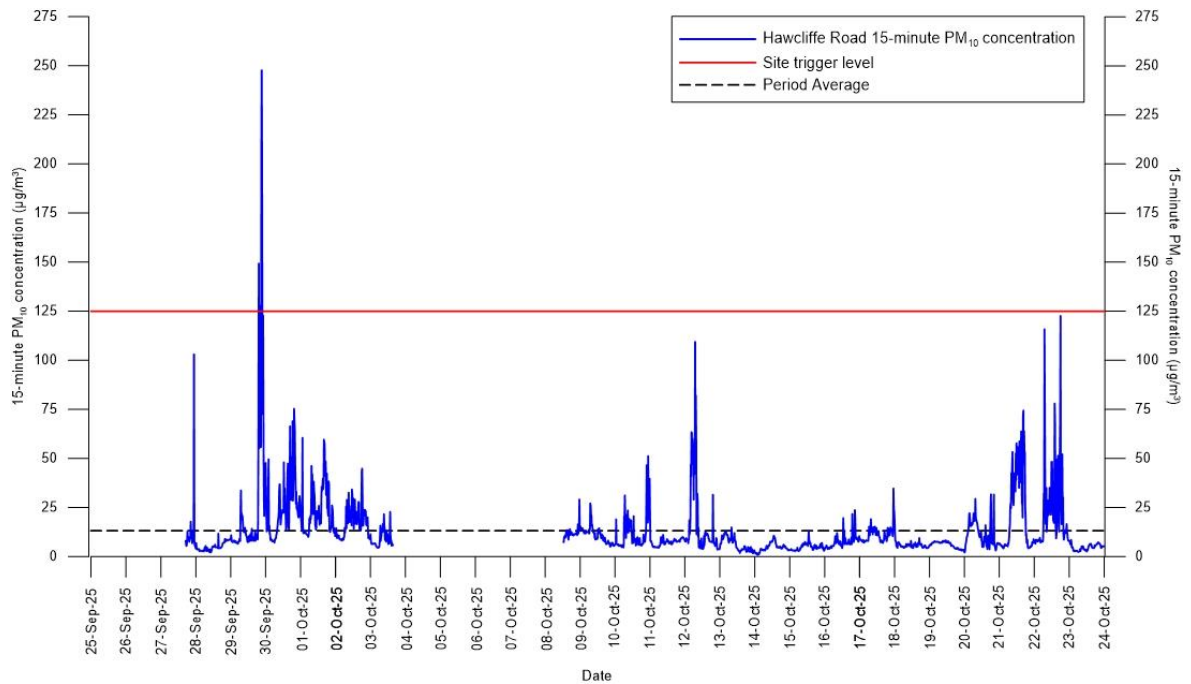


Figure 3.4: 15-minute mean PM₁₀ concentration, Hawcliffe Road, 25 September – 24 October 2025

Figure 3.4 indicates that the period average concentration at the Hawcliffe Road sampler for this period was 13.2 µg/m³, with the alert threshold being exceeded on one day during this monitoring period. Details of the exceedances are provided in Table 3.1.

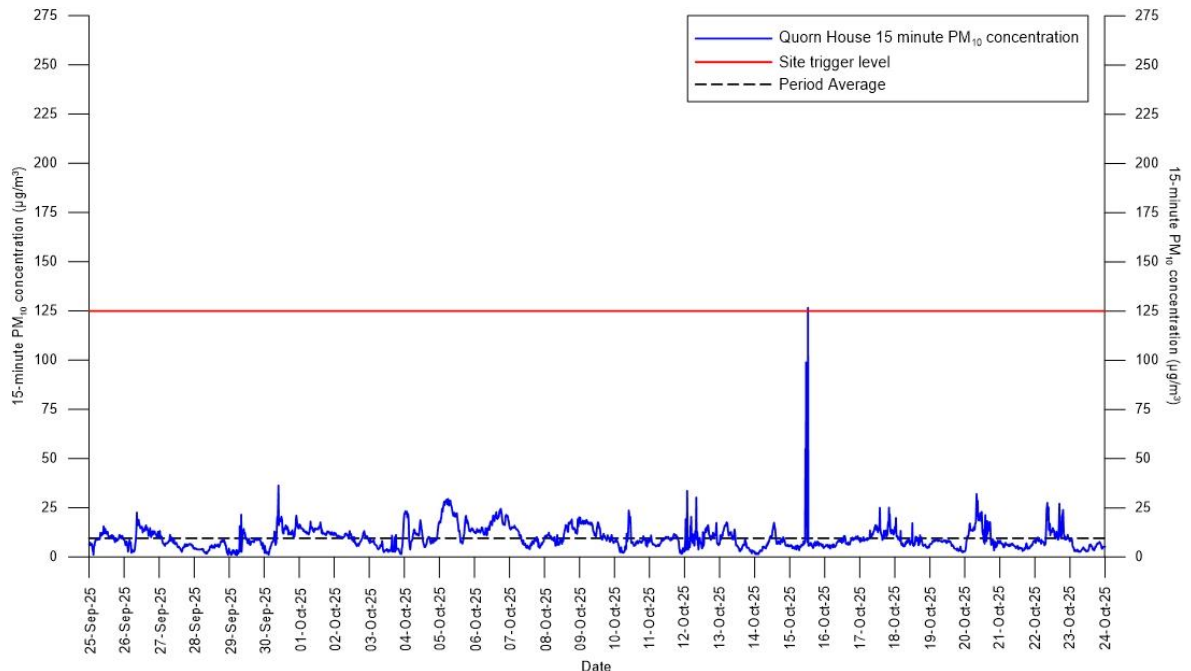


Figure 3.5: 15-minute mean PM₁₀ concentration, Quorn House, 25 September – 24 October 2025

At Quorn house there was one exceedance of the PM₁₀ site trigger, and the period average was 9.5 µg/m³. Details of the exceedances are provided in Table 3.1.

During this review period, trigger emails alerting staff to high PM₁₀ levels were sent on one day from the Hawcliffe Road Osiris and one day from the Quorn House Osiris. Details of the corresponding causes and investigations are provided in Table 3.1.

Table 3.1: Email alert responses, between 25 September – 24 October 2025 (using the trigger threshold, 125 µg/m³ for the 15-minute average)

Date of alert	Monitor	Details	Possible cause and investigation
29/09/2025	Hawcliffe Road	Exceedances recorded from the west in the evening.	All operations being carried out at the time of the alerts were observed by the nightshift manager. Dust suppression all working and areas observed as wet. Standard Havens asphalt plant reported hole on imported filler line. Hole repaired.
15/10/2025	Quorn House	Exceedances from the north-northwest at midday.	Alert caused by equipment maintenance activities near the monitor at Quorn House.

3.2.2 PM_{2.5}

The results of PM_{2.5} monitoring at Hawcliffe Road and Quorn House are presented in Figure 3.6 and Figure 3.7. The dashed black line denotes the average concentration recorded over this period. Due to a technical issue, no PM_{2.5} data were available from the Hawcliffe Road sampler for two periods: 25 – 26 September and 04 – 07 October 2025.

Additional PM_{2.5} monitoring data (collected by CBC and the Defra AURN monitoring network) are provided in Appendix B.

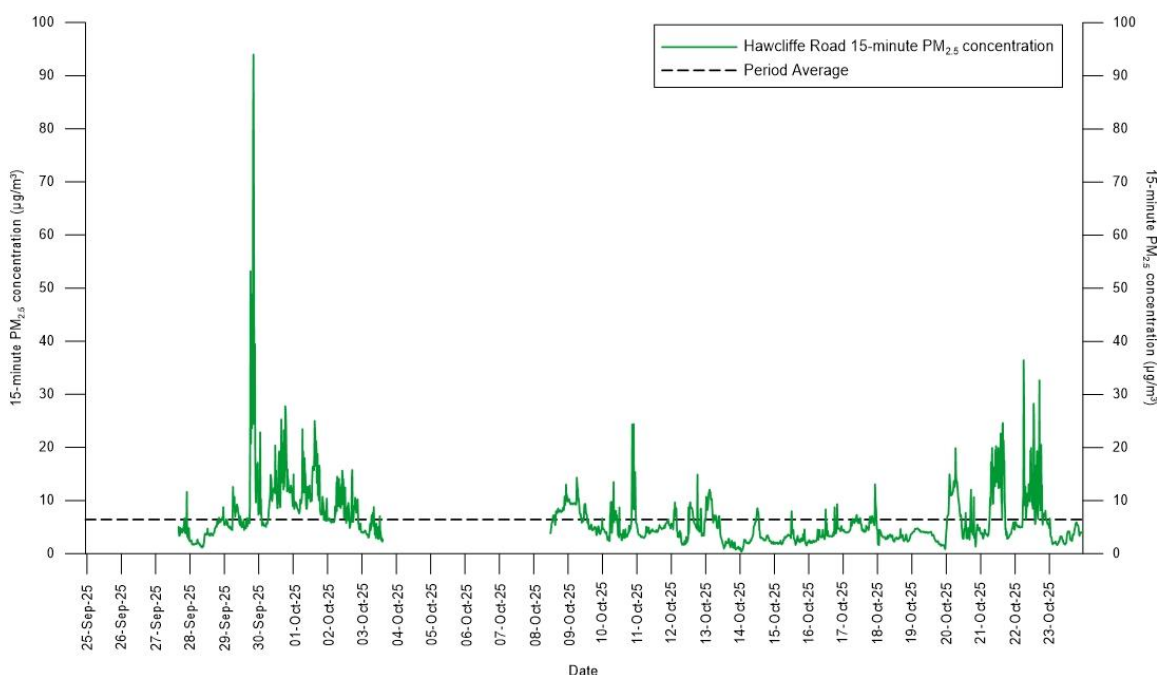


Figure 3.6: 15-minute mean PM_{2.5} concentration, Hawcliffe Road, 25 September – 24 October 2025

At Hawcliffe Road, the period average concentration was $6.4 \mu\text{g}/\text{m}^3$, whilst at Quorn House, the period average was $4.7 \mu\text{g}/\text{m}^3$. In general, $\text{PM}_{2.5}$ concentrations recorded at Hawcliffe Road are more variable than at Quorn House (as shown by the increased frequency of spikes in the dataset); this is most likely due to its location on the site boundary and in a more built-up environment when compared to the rural location of Quorn House. Additionally, the spike in both PM_{10} and $\text{PM}_{2.5}$ on the 29 October is not visible at Quorn House, suggesting this was a more localised event.

For this period, 49% of PM_{10} recorded at Hawcliffe Road comprised $\text{PM}_{2.5}$, whilst it made up 50% at Quorn House.

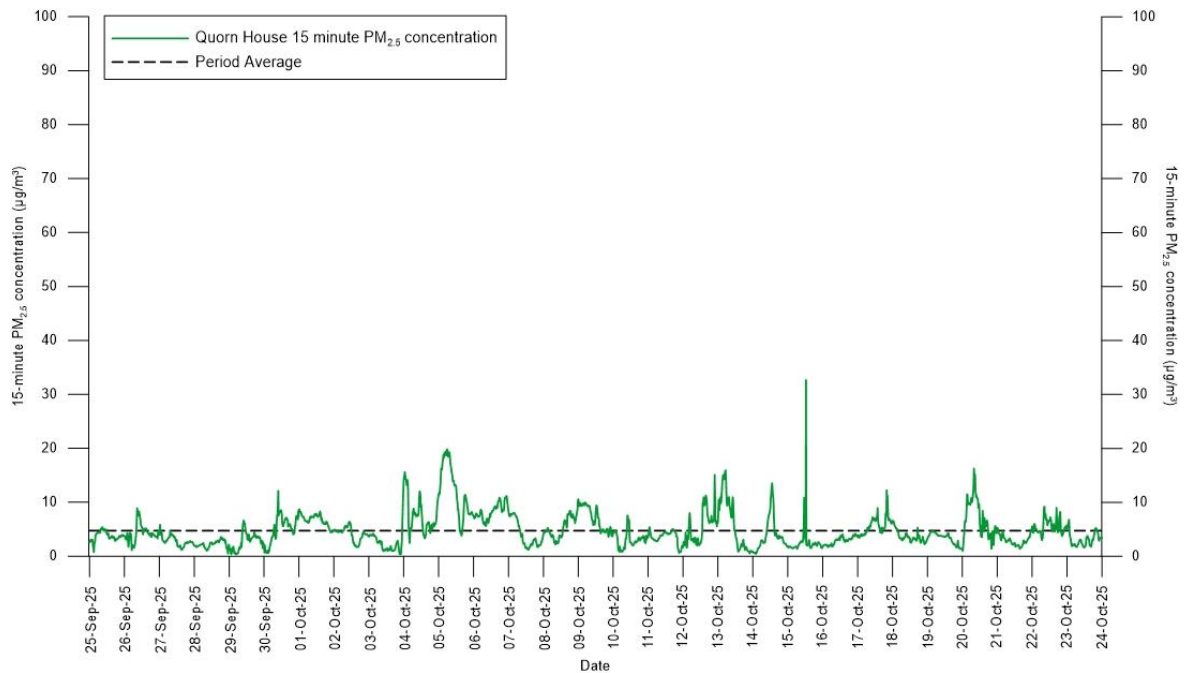


Figure 3.7: 15-minute mean $\text{PM}_{2.5}$ concentration, Quorn House, 25 September – 24 October 2025

3.3 Visible dust

3.3.1 Deposited dust monitoring summary

The deposited dust data for 25 September – 24 October 2025 are summarised in Table 3.2. As outlined above, there is a site-wide threshold for investigation to identify the potential dust source/s, taking account of the directional data. Table 3.2 shows that, for the available data, deposited dust levels during 25 September – 24 October 2025 were within the site-specific threshold for all stations. Due to access issues, no deposited or directional dust data were available from Quorn House during this monitoring period.

Table 3.2: Summary of deposited dust (undissolved solids), 25 September – 24 October 2025

Undissolved solids (mg/m ² /day)				
This month report start date:		25-Sep-25		
This month report end date:		24-Oct-25		
Receptor location	Nearest / appropriate dust monitoring point	Reported value	Trigger: $\geq 125^a$	Magnitude ^b
Swithland Lane; Rushey Lane; Kinchley Lane	Stn 1	71	No	Low
Swithland Lane; Rushey Lane; Kinchley Lane	Stn 1A	37	No	Very Low
Swithland Lane; Rushey Lane; Kinchley Lane	Stn 1B	28	No	Very Low
Mill Farm; Quorn House	Stn 3	16	No	Very Low
Woodside Farm, Leicester Road	Stn 4A	31	No	Very Low
Quorn Grange, Unitt Road, Northage Close, Quorn Park	Stn 4B	33	No	Very Low
Bond Lane; Crown Lane	Stn 5	22	No	Very Low
Sileby Road; Huston Close; Sileby Road (commercial)	Stn 6A	32	No	Very Low
Hawcliffe Road	Stn 9	75	No	Low
Glebe Close; Halstead Road (south); Halstead Road (north)	Stn 10	26	No	Very Low
Loughborough Road; River Soar (marina / caravan park)	Stn 11	24	No	Very Low
Meadow Farm Marina and Caravan Park	Stn 12	29	No	Very Low
Quorn House Park	Stn 13	no data	No data	N/A

^a Trigger mass deposition and Effective Area Coverage rates as in Section 7.3, ZLFMS-AG008 Dust Management and Monitoring Plan (Updated), 2015

^b Magnitude of mass deposition rate assessed against typical rate for semi-rural areas (30 - 80 mg/m²/day)

Regarding dust deposition over time, the rates across the sampling area have varied considerably. Trends in dust deposition rates (as undissolved solids) for the previous 12 months, together with the site-wide dust threshold are illustrated in Figure 3.8.

In general, as would be expected, dust deposition rates are typically lower in winter months than in summer months. This trend is clearly seen for most monitoring points in Figure 3.8, with some exceptions. Dust deposition rates have been consistently below the ‘trigger limit’ at all sampling locations, with the exception of Stn 4A, which has exceeded the threshold on one occasion over the past 12 months.

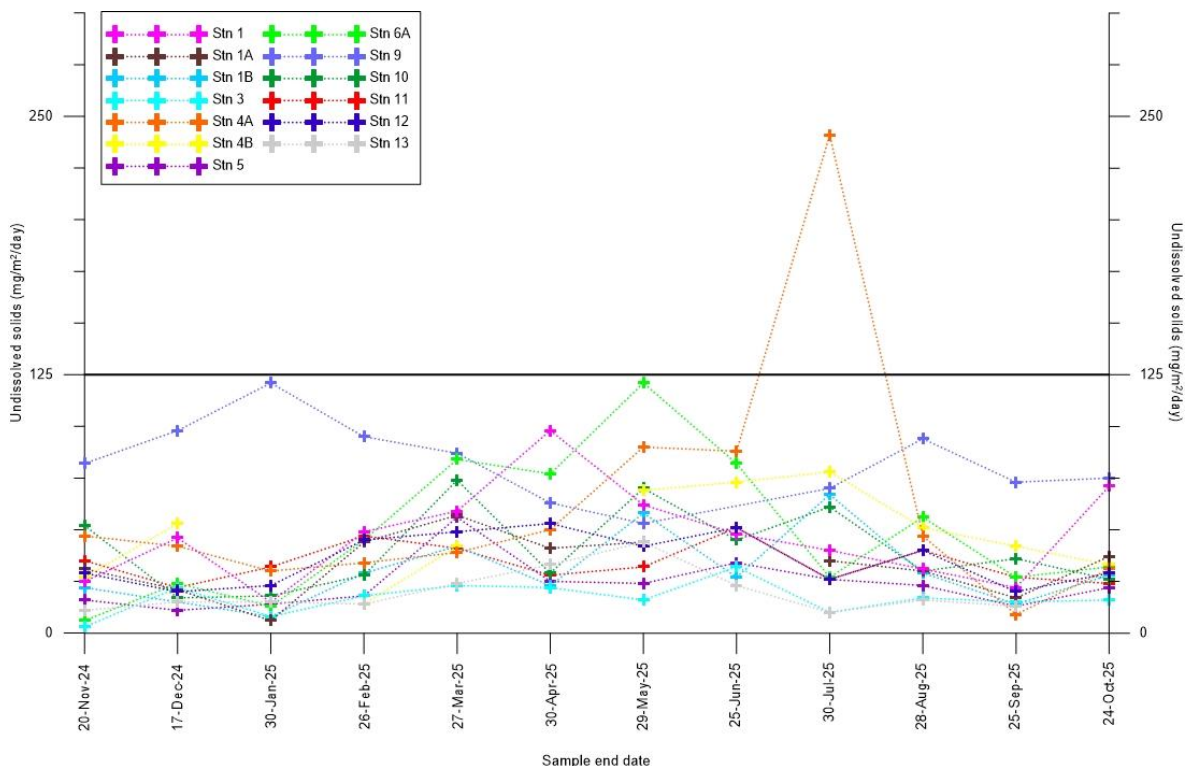


Figure 3.8: Dust deposition rates per sampling location over time (past 12 months)

3.3.2 Directional dust monitoring summary

The directional dust data for 25 September – 24 October 2025 are summarised in Table 3.3 and are presented graphically in Figure 3.9. As with deposited dust, the DMMP sets out a site-wide directional dust threshold. For directional dust soiling, 0.5 % Effective Area Coverage (EAC) per day is a trigger limit for investigation to identify the likely dust source/s, again taking account of the direction. Table 3.3 and Figure 3.9 show that during 25 September – 24 October 2025, all stations recorded Very Low dust flux from all directions, except for Stn 9 which recorded up to Low from onsite directions.

Table 3.3: Summary of directional dust soiling, 25 September – 24 October 2025

Directional dust soiling (%EAC/day) by direction (°)										
This month report start date:		25-Sep-25								
This month report end date:		24-Oct-25								
Receptor location	Nearest / appropriate dust monitoring point		Direction (°)							
			0	45	90	135	180	225	270	315
Swithland Lane; Rushey Lane; Kinchley Lane	Stn 1	Reported value	0.1	0	0	0.1	0.1	0	0	0
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Swithland Lane; Rushey Lane; Kinchley Lane	Stn 1A	Reported value	0.1	0	0	0	0	0	0.1	0.1
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Swithland Lane; Rushey Lane; Kinchley Lane	Stn 1B	Reported value	0	0	0	0.1	0.1	0.1	0.1	0.1
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Mill Farm; Quorn House	Stn 3	Reported value	0	0	0	0	0	0	0	0
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Woodside Farm, Leicester Road	Stn 4A	Reported value	0	0	0	0.1	0	0.1	0.1	0
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Quorn Grange, Unitt Road, Northage Close, Quorn Park	Stn 4B	Reported value	0	0	0.1	0	0.1	0	0	0.1
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Bond Lane; Crown Lane	Stn 5	Reported value	0	0	0	0.1	0	0	0	0
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Sileby Road; Huston Close; Sileby Road (commercial)	Stn 6A	Reported value	0.1	0	0.1	0.1	0.1	0.1	0.1	0.1
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Hawcliffe Road	Stn 9	Reported value	0	0	0	0	0	0.2	0.2	0.1
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Low	Low	Very Low
Glebe Close; Halstead Road (south); Halstead Road (north)	Stn 10	Reported value	0	0	0	0.1	0.1	0.1	0	0.1
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Loughborough Road; River Soar (marina / caravan park)	Stn 11	Reported value	0	0	0	0.1	0	0	0	0
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Meadow Farm Marina and Caravan Park	Stn 12	Reported value	0.1	0.1	0.1	0	0	0.1	0.1	0.1
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Quorn House Park	Stn 13	Reported value	no data	no data	no data	no data	no data	no data	no data	no data
		Trigger: $\geq 0.5^a$	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Magnitude ^b	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

^a Trigger mass deposition and Effective Area Coverage rates as in Section 7.3, ZLFMS-AG008 Dust Management and Monitoring Plan (Updated), 2015

^b Magnitude of directional dust soiling derived from Beaman and Kingsbury, 1981

^c Direction/s not determined for daily EAC below 0.1%/day (very low soiling)

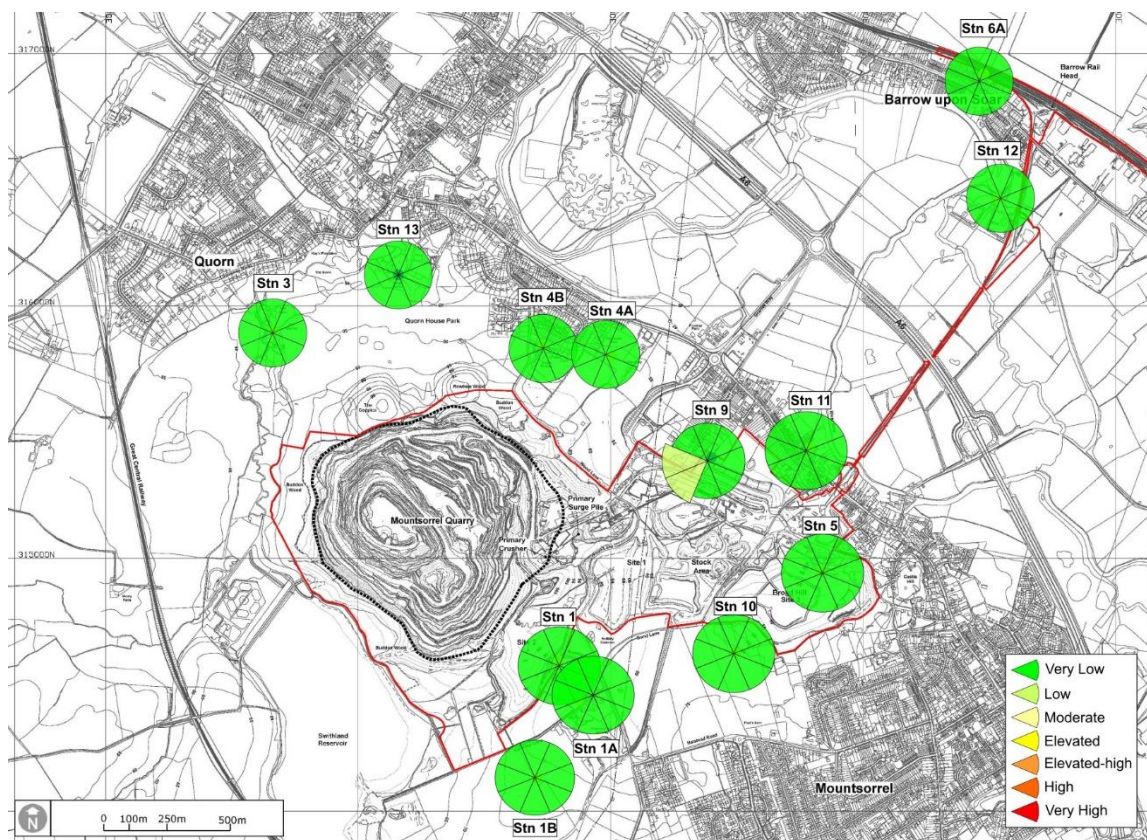


Figure 3.9: Directional dust soiling rose diagrams, 25 September – 24 October 2025

Table 3.4 shows that the average directional soiling rates have been at Very Low levels at most monitoring locations, for most directions, over the past year. Low average directional dust flux levels were recorded from the southwest and west at Stn 9, and from the east at Stn 6A.

Table 3.4: Running average directional dust soiling (past 12 months)

Receptor location	Nearest / appropriate dust monitoring point		Direction (°)							
			0	45	90	135	180	225	270	315
Swithland Lane; Rushey Lane; Kinchley Lane	Stn 1	Average value	0.1	0.1	0.1	0	0.1	0.1	0.1	0.1
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Swithland Lane; Rushey Lane; Kinchley Lane	Stn 1A	Average value	0.1	0.1	0.1	0	0	0.1	0.1	0.1
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Swithland Lane; Rushey Lane; Kinchley Lane	Stn 1B	Average value	0.1	0	0	0.1	0.1	0.1	0.1	0.1
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Mill Farm; Quorn House	Stn 3	Average value	0	0.1	0.1	0.1	0.1	0.1	0	0
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Woodside Farm, Leicester Road	Stn 4A	Average value	0	0.1	0.1	0.1	0	0.1	0.1	0.1
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Quorn Grange, Unitt Road, Northage Close, Quorn Park	Stn 4B	Average value	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Bond Lane; Crown Lane	Stn 5	Average value	0.1	0.1	0	0.1	0.1	0.1	0.1	0.1
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Sileby Road; Huston Close; Sileby Road (commercial)	Stn 6A	Average value	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1
		Magnitude ^b	Very Low	Very Low	Low	Very Low	Very Low	Low	Very Low	Very Low
Hawcliffe Road	Stn 9	Average value	0.1	0.1	0.1	0.1	0	0.2	0.2	0.1
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Low	Low	Very Low
Glebe Close; Halstead Road (south); Halstead Road (north)	Stn 10	Average value	0.1	0	0	0.1	0.1	0.1	0.1	0.1
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Loughborough Road; River Soar (marina / caravan park)	Stn 11	Average value	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Meadow Farm Marina and Caravan Park	Stn 12	Average value	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Quorn House Park	Stn 13	Average value	0	0	0.1	0.1	0	0.1	0.1	0.1
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low

^a Trigger mass deposition and Effective Area Coverage rates as in Section 7.3, ZLFMS-AG008 Dust Management and Monitoring Plan (Updated), 2015

^b Magnitude of directional dust soiling derived from Beaman and Kingsbury, 1981

^c Direction/s not determined for daily EAC below 0.1%/day (very low soiling)

4 Complaints

During October 2025, it is understood that no complaints were received by the quarry.

Appendix A: Off-site PM₁₀ monitoring (CBC and AURN)

The daily average PM₁₀ concentrations recorded by the CBC Zephyr are presented below in Figure A.1, alongside similar data from the Defra Automatic Urban and Rural Network (AURN) station in Leicester University³.

For the monitoring period 25 September – 24 October 2025, the CBC Zephyr and Leicester AURN station both had a data capture of 100%.

For the available data, the average daily PM₁₀ concentration for this monitoring period at the CBC Zephyr (Hawcliffe Road) was 13.1 µg/m³. At the Leicester AURN the average daily PM₁₀ concentration was 12.0 µg/m³ for the monitoring period.

During this monitoring period, the average daily PM₁₀ concentrations recorded from the onsite monitors were similar to the CBC Zephyr and Leicester AURN, with 13.2 µg/m³ at Hawcliffe Road and 9.5 µg/m³ at Quorn House.

Between 25 September – 24 October 2025 there were no recorded instances where the daily average PM₁₀ concentrations exceeded 50 µg/m³ at the CBC Zephyr or at the Leicester AURN.

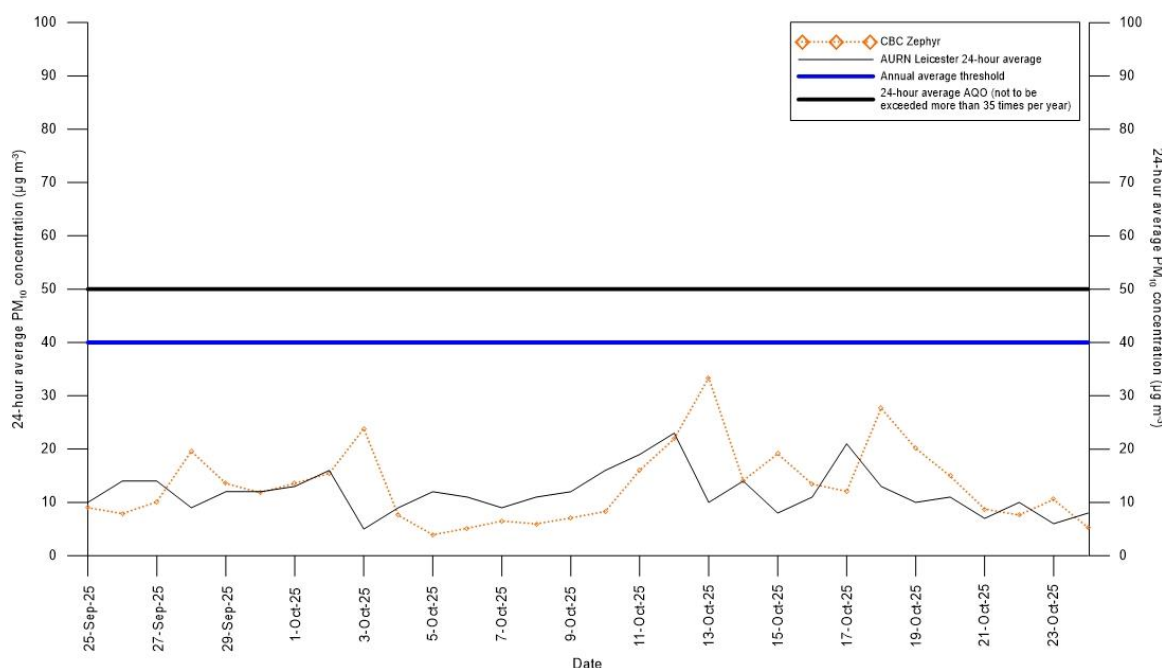


Figure A.1: Daily average PM₁₀ concentration, CBC Zephyr and Leicester AURN, 25 September – 24 October 2025

³ <http://uk-air.defra.gov.uk/networks/network-info?view=aurn>

Appendix B: Off-site PM_{2.5} monitoring (CBC and AURN)

The daily average PM_{2.5} concentrations recorded by the CBC Zephyr are presented below in Figure B.1, alongside similar data from the Defra Automatic Urban and Rural Network (AURN) station in Leicester University.

For the monitoring period 25 September – 24 October 2025, there was 100 % data capture recorded from the CBC Zephyr and Leicester AURN station. For the available data the average daily PM_{2.5} concentration for this monitoring period at the CBC Zephyr was 8.6 µg/m³. At the Leicester AURN the average daily PM_{2.5} concentration was 7.6 µg/m³ for the monitoring period.

Onsite PM_{2.5} concentrations were lower at both Hawcliffe Road (6.4 µg/m³) and Quorn House (4.7 µg/m³) compared to off-site averages of 8.6 µg/m³ at CBC Zephyr and 7.6 µg/m³ at Leicester AURN, likely reflecting the differences in locations.

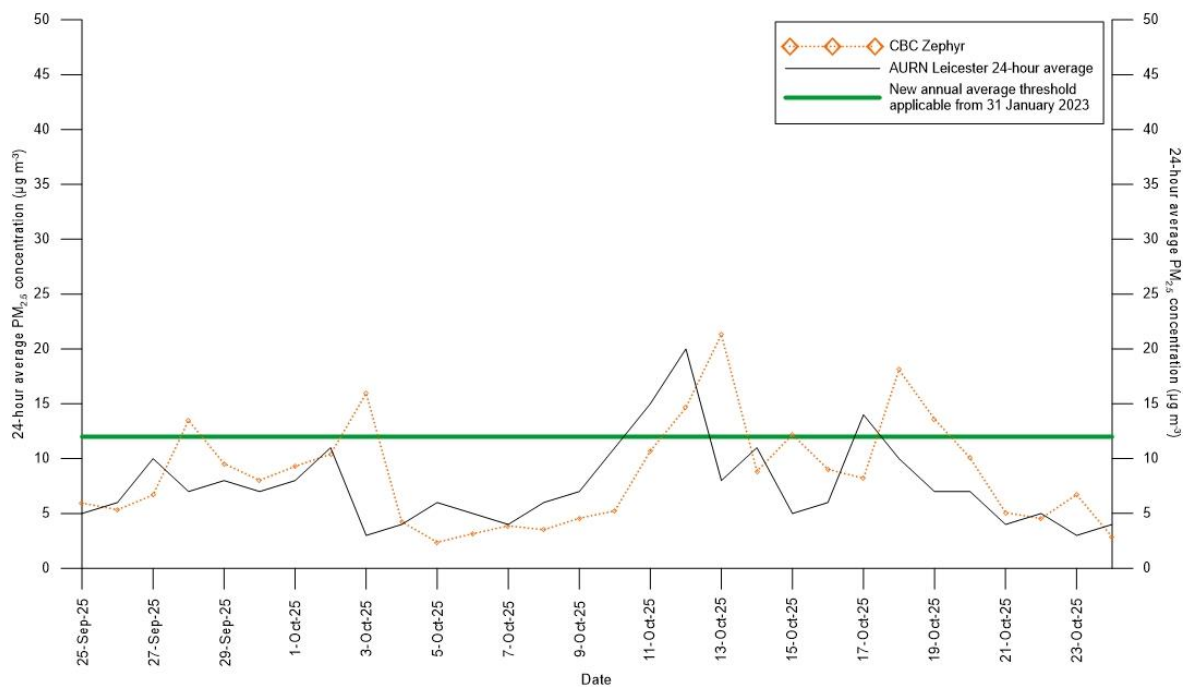


Figure B.1: Daily average PM_{2.5} concentrations, CBC Zephyr and Leicester AURN, 25 September – 24 October 2025

Appendix C: Off-site PM₁₀ and PM_{2.5} Annual Summary

Table C.1: Average PM₁₀ concentrations at CBC Zephyr and Leicester AURN for 12 months up to 24 October 2025.

	AURN Leicester University	CBC Zephyr
Valid data capture	100 %	89 %
Period average PM ₁₀ concentration	12.7 µg/m ³	14.0 µg/m ³
Percentage of annual AQO (40 µg/m ³)	31.8 %	35.0 %
No. exceedances of daily AQO (50 µg/m ³ , not to be exceeded more than 35 times per calendar year)	1	3

Table C.2: Average PM_{2.5} concentrations at CBC Zephyr and Leicester AURN for 12 months up to 24 October 2025.

	AURN Leicester University	CBC Zephyr
Valid data capture	100 %	89 %
Period average PM _{2.5} concentration	8.3 µg/m ³	9.2 µg/m ³
Percentage of interim target (12 µg/m ³ as an annual average)	69 %	77 %



Dust, Particulate Matter and Weather Monitoring Report: November 2025

Mountsorrel Quarry

January, 2026

Tarmac



Document Control Sheet

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Disclaimer

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This report may include data obtained from trusted third-party consultants/laboratories that have been supplied to us in good faith. Whilst we do everything we can to ensure the quality of all the data we use, we cannot be held responsible for the accuracy or integrity of third-party data.

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1 Introduction

Mountsorrel Quarry has a comprehensive Dust Management and Monitoring Plan (DMMP). The DMMP was developed in 2011 and is subject to regular review and revision, in consultation between Tarmac and the local regulators (Leicestershire County Council (LCC) and Charnwood Borough Council (CBC)).

The DMMP is enacted through the quarry Site Improvement Plan (SIP). The SIP sets out a programme of actions to reduce the environmental impact of specific areas of the site operation, and is updated regularly by quarry management, with support from DustScanAQ through regular site visits and quarterly reviews with LCC and CBC.

Section 7.5 of the DMMP requires that a monthly summary and review of dust and particulate matter monitoring is prepared and circulated with LCC, CBC and the Environment Agency.

This report details the results of dust, particulate matter and weather monitoring around Mountsorrel Quarry during the period 24 October – 20 November 2025.

1.1 Report scope

The intention of this report is to summarise dust and particulate matter monitoring results for the given period and compare them against site-specific alert limits and thresholds. This report also details the results of any investigation carried out into elevated dust or particulate matter levels, as prompted by an exceedance of alert limits or thresholds.

1.2 Dust definitions

'Dust' is generally regarded as particulate matter up to 75 µm (micron) diameter and can be considered in two categories. Fine dust, essentially particles up to 10 µm, is commonly referred to as PM₁₀ and is measured to agreed standards and forms part of the national Air Quality Objectives (AQO). The AQO for PM₁₀ is currently 50 µg/m³ for the 24-hour mean, not to be exceeded 35 times per year and 40 µg/m³ for the annual mean. Particles up to 2.5 µm in diameter are referred to as PM_{2.5}. The interim target for PM_{2.5} is 12 µg/m³ for the annual mean (to be achieved by 2028), whilst the legal AQO for PM_{2.5} is 10 µg/m³ for the annual mean (to be achieved by 2040) as per The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023¹.

It may be noted that the above Regulations relate to average particle concentrations in Local Authority districts thus do not apply to any specific industrial or other operation, such as Mountsorrel Quarry, and are included for reference. Coarser dust (essentially particles greater than 10 µm) is generally regarded as 'nuisance dust' and can be associated with annoyance, although there are no official standards (such as AQO) for dust annoyance.

¹ Statutory Instrument. (2023), 'The Environmental Targets (Fine Particulate Matter) (England) Regulations', No. 96. King's Printer of Acts of Parliament

2 Sampler locations

As shown in Figure 2.1 and Table 2.1, dust, particulate matter and weather conditions are measured at a number of locations around site and the surrounding area:

- Directional and depositional dust: currently monitored at 13 locations;
- Particulate matter: currently monitored at two locations;
- Weather conditions: currently monitored at one location.

The majority of the dust samplers around Mountsorrel Quarry comprise the 'Frisbee-type' deposition gauge combined with an adhesive 'sticky pad' directional gauge. These samplers are used to monitor 'nuisance' dust and samples from these instruments are collected on a monthly basis.

For particulate matter, Turnkey Osiris samplers are located at Stn 9 (Hawcliffe Road) and at Stn 13 (Quorn House). These recognised and certificated 'indicative' real-time devices are connected to their own wind vane and anemometer and provide near-instantaneous directional PM₁₀, PM_{2.5} and PM₁ data directly to the quarry management team.

A weather station is located at the site offices off Wood Lane and collects a range of weather parameters over fifteen-minute intervals. Data from the weather station are available to the quarry management by means of a dedicated modem connection to the internet. Due to a malfunctioning battery, the station had been offline from 17 April; however, as of 08 October the device is now fully functional again.

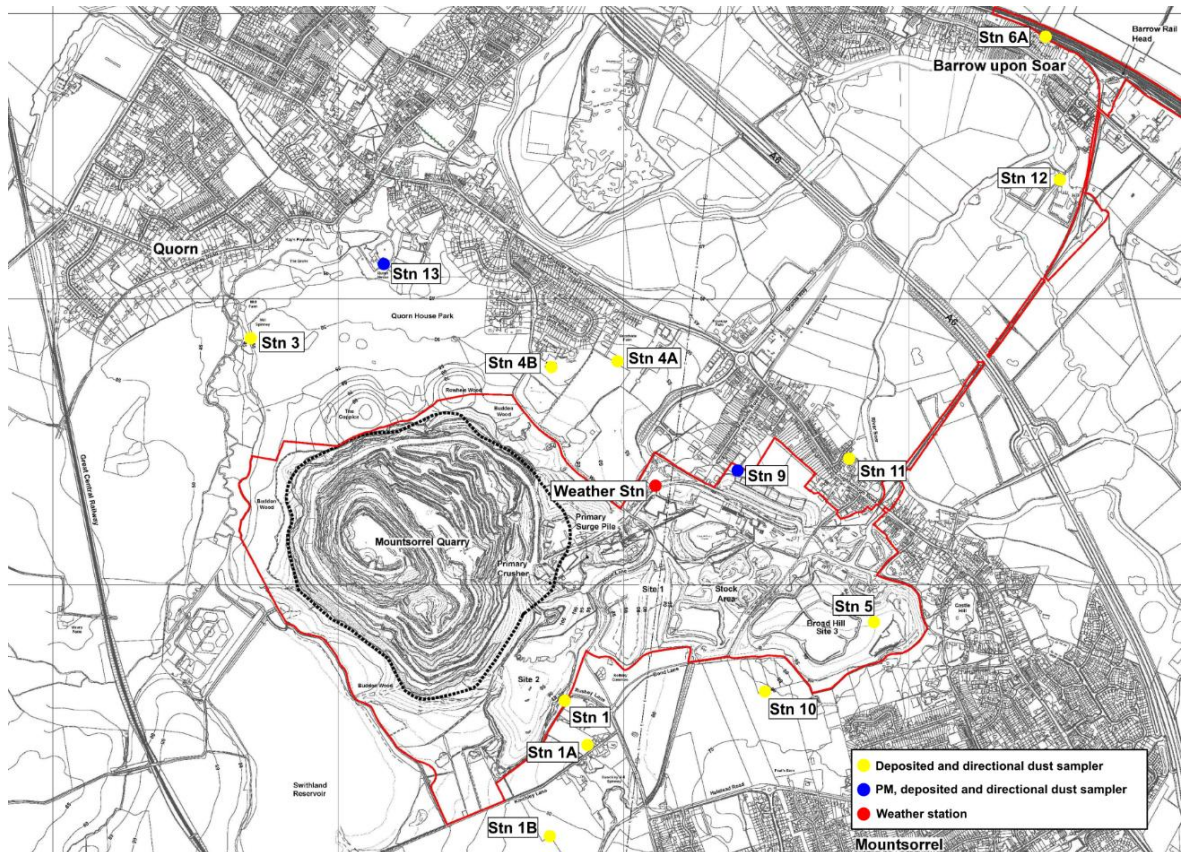


Figure 2.1: Particulate matter, dust and weather monitoring locations, Mountsorrel Quarry

Table 2.1: Particulate matter, dust and weather monitoring locations, Mountsorrel Quarry

Sampler reference	Easting	Northing	Locality monitored
Stn 1	456787	314586	Swithland Lane; Rushey Lane; Kinchley Lane
Stn 1A	456882	314449	Swithland Lane; Rushey Lane; Kinchley Lane
Stn 1B	456745	314112	Swithland Lane; Rushey Lane; Kinchley Lane
Stn 3	455685	315844	Mill Farm; Quorn House
Stn 4A	456966	315787	Woodside Farm; Leicester Road
Stn 4B	456732	315767	Quorn Grange, Unitt Road, Northage Close, Quorn Park
Stn 5	457872	314875	Bond Lane; Crown Lane
Stn 6A	458655	316785	Sileby Road; Huston Close; Sileby Road (commercial)
Stn 9 (inc. PM)	457374	315398	Hawcliffe Road
Stn 10	457509	314627	Glebe Close; Halstead Road (south); Halstead Road (north)

Sampler reference	Easting	Northing	Locality monitored
Stn 11	457835	315504	Loughborough Road; River Soar (marina / caravan park)
Stn 12	458551	316457	Meadow Farm Marina and Caravan Park
Stn 13 (incl. PM)	456154	316087	Northage Close, Meeting Street
Weather Station	457126	315376	Wood Lane Site Offices

Charnwood Borough Council (CBC) is responsible for the monitoring of air quality within the borough and prepares Air Quality Annual Status Reports (ASRs) for submission to Defra. It operates a Zephyr air quality monitor which is located within the Leicestershire County Council (LCC) depot at the southern end of Hawcliffe Road, in close proximity to the Osiris device at Stn 9. This device measures a number of pollutants including PM₁₀ and PM_{2.5}. The purpose of this monitoring is for CBC to compare measured concentrations against the relevant AQOs for these pollutants.

For additional context, the latest PM₁₀ and PM_{2.5} monitoring data from CBC are summarised in Appendix A and Appendix B, whilst a summary of the latest 12 months of data are provided in Appendix C for reference.

2.1 Alert thresholds and response procedures

To help the site reduce its impact on the surrounding area, a number of alert thresholds have been calculated, as outlined in Table 2.2.

Table 2.2: Alert thresholds

Pollutant	Threshold	Averaging period	Applies to
PM ₁₀	125 µg/m ³	15 minutes	Stn 9 (Hawcliffe Road), Stn 13 (Quorn House)
Deposited dust	125 mg/m ² /day	1 month	All deposited dust monitoring locations

For particulate matter (PM₁₀) an alert threshold of 125 µg/m³ for the 15-minute average has been in use for several years as a trigger limit for investigation to identify potential on-site issues.

Analysis of data from the site has demonstrated that PM₁₀ provides a stronger 'site signal' than PM_{2.5}. The purpose of alerts is to provide site managers with information regarding elevated PM₁₀ concentrations, allowing them to investigate and make operational changes if necessary. An alert threshold has therefore not been set for PM_{2.5} to prevent duplication.

PM₁₀ and PM_{2.5} concentrations recorded by CBC at the southern end of Hawcliffe Road and by Defra through the Automatic Urban and Rural Network (AURN) at Leicester University are presented in Appendix A and Appendix B respectively. Data from both locations have been compared against relevant Air Quality Objectives (AQOs) for PM₁₀ and PM_{2.5}.

For deposited dust, the DMMP sets out a site-wide deposited dust threshold of 125 mg/m²/day 'undissolved solids' as a trigger limit for investigation to identify the potential dust source/s, taking account of the directional data.

3 Results

3.1 Weather monitoring

Weather conditions can have a significant effect on the potential for dust propagation from a mineral site. Of particular importance are wind speeds, wind direction, and precipitation. Dust can be carried from a source towards receptors (such as nearby homes and other businesses) according to the strength and direction of wind. Precipitation is recognised to suppress dust and 0.2 mm antecedent rainfall is considered sufficient to suppress windblown dust for a number of hours.

The key weather data which might affect dust propagation (wind speed, wind direction, total daily precipitation and average daily temperature) for this reporting period are summarised in Figure 3.1 and Figure 3.2.

This monitoring period was unusually mild and dry for November, with a decrease in temperature towards the end of the month. The maximum average daily temperature was 15.2 °C, recorded on 05 November 2025 and the minimum average daily temperature was 1.3 °C, recorded on 20 November. Precipitation was recorded on just 18 % of days during this period, with a 15-day dry period during the start of November; this lack of precipitation may have increased the risk of dust propagation during this period.

As seen in Figure 3.2, winds were mostly calm to moderate in speed ($>0.5 - 6$ m/s) and were predominantly recorded from the south and south-southeast. This may have resulted in an increased potential for dust propagation to the north-northwest and north during 24 October – 20 November 2025.

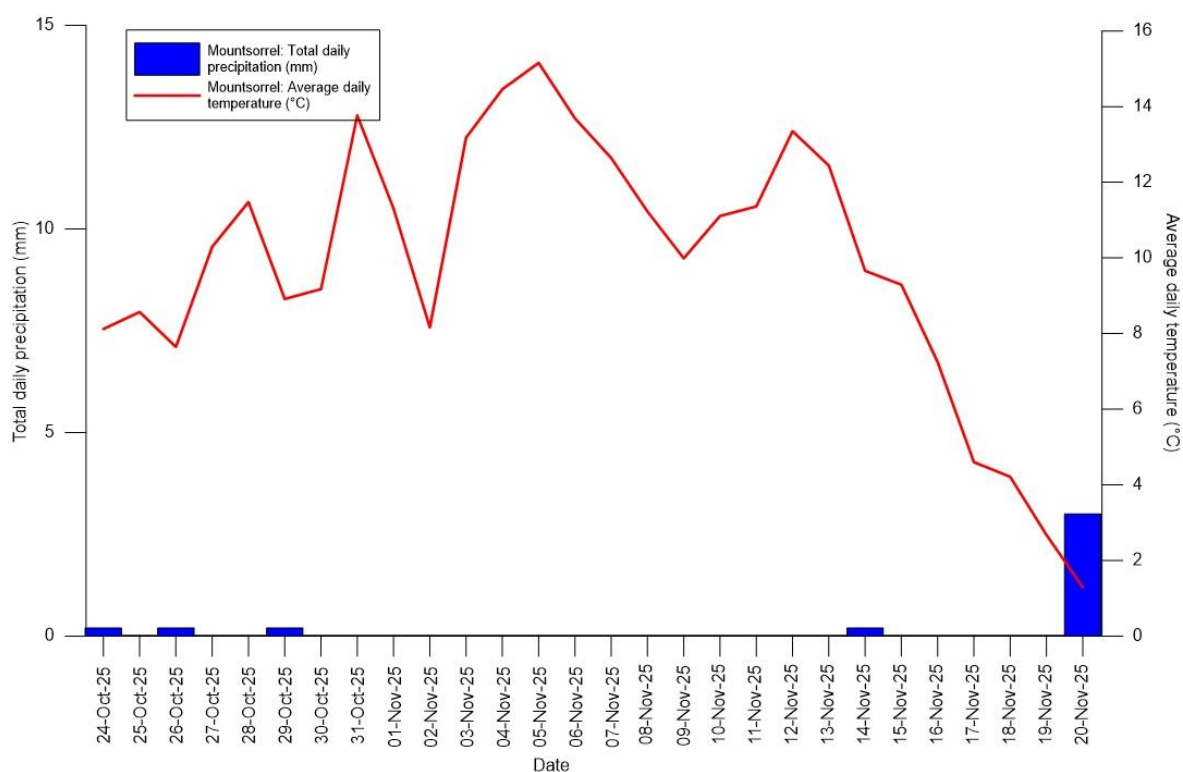


Figure 3.1: Total daily precipitation and average daily temperature, Mountsorrel Quarry, 24 October – 20 November 2025

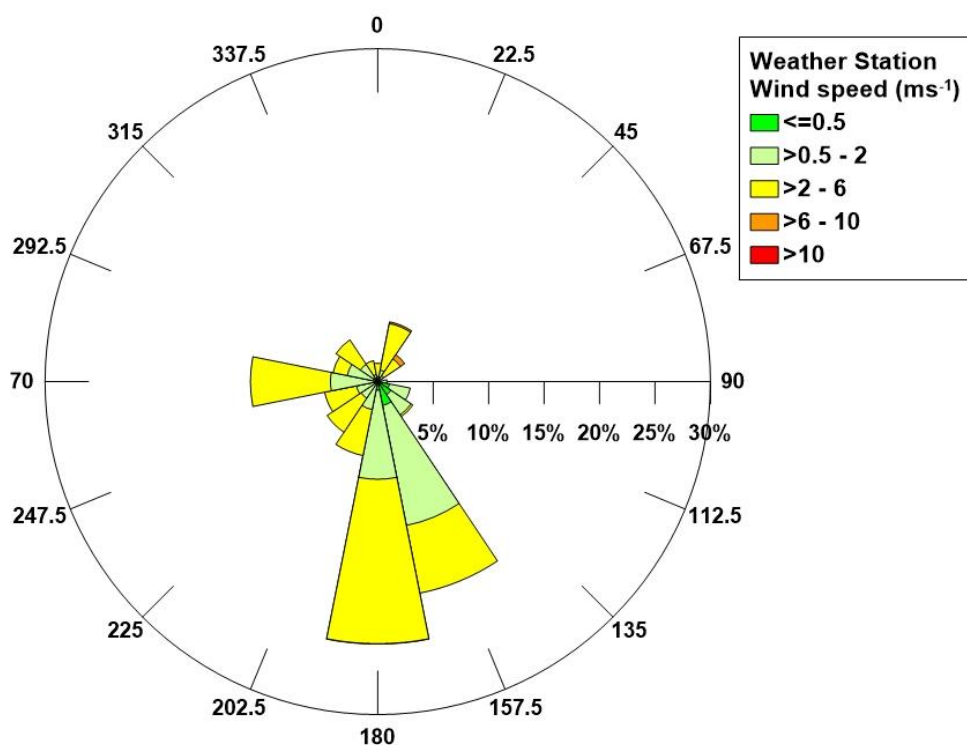


Figure 3.2: Wind rose, Mountsorrel Quarry, 24 October – 20 November 2025

3.2 Particulate matter

3.2.1 PM₁₀

The available 15-minute data from the period of review are presented for both monitoring locations in Figure 3.4 and Figure 3.4 respectively. The red line denotes the site trigger level (125 $\mu\text{g}/\text{m}^3$ over the 15-minute average), whilst the dashed black line denotes the average concentration recorded over this period.

Additional PM₁₀ monitoring data (collected by CBC and the Defra AURN monitoring network) are provided in Appendix A.

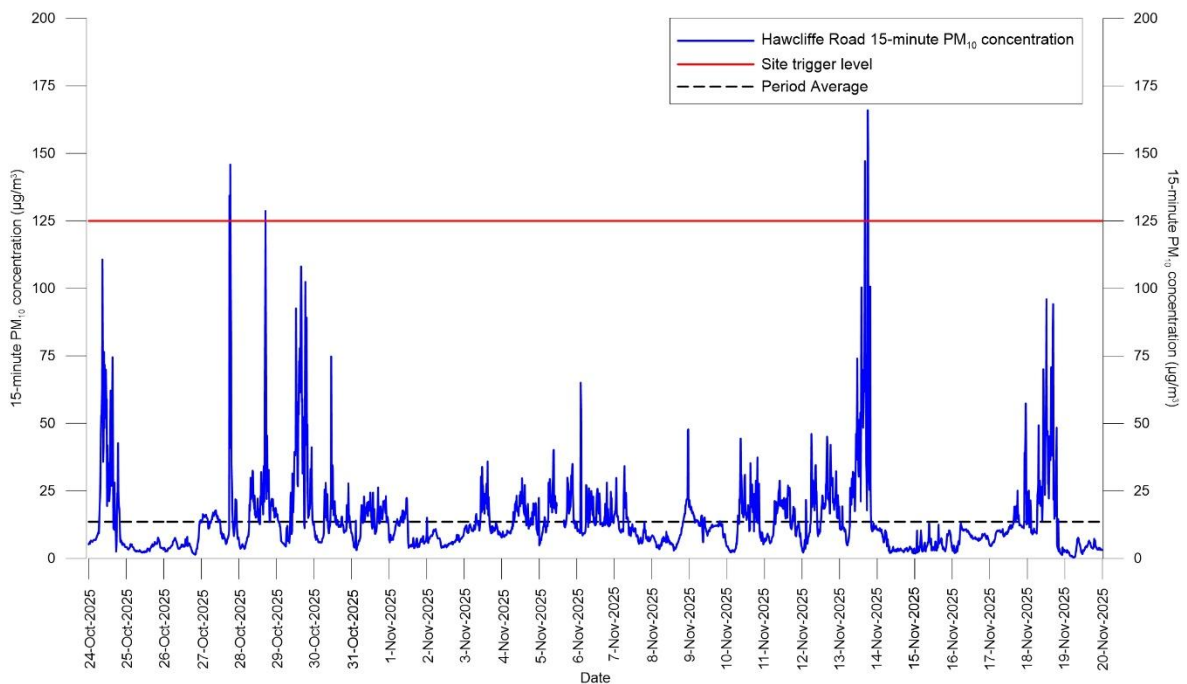


Figure 3.3: 15-minute mean PM₁₀ concentration, Hawcliffe Road, 24 October – 20 November 2025

Figure 3.3 indicates that the period average concentration at the Hawcliffe Road sampler for this period was 13.6 $\mu\text{g}/\text{m}^3$, with the alert threshold being exceeded on three days during this monitoring period. Details of the exceedances are provided in Table 3.1.

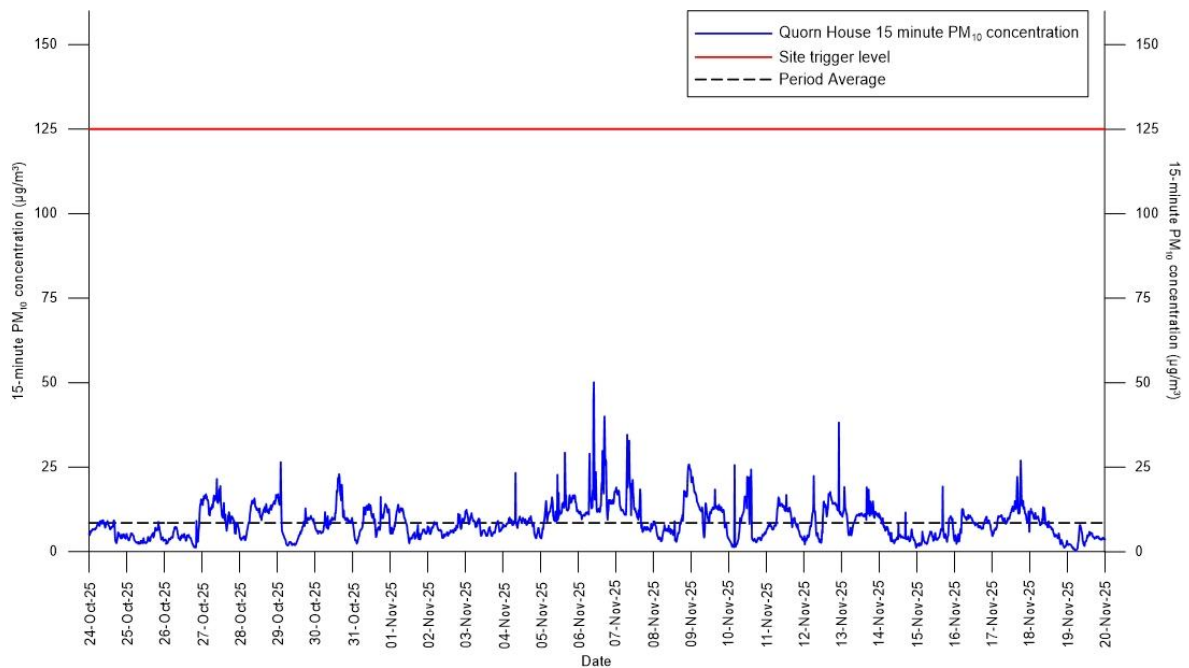


Figure 3.4: 15-minute mean PM₁₀ concentration, Quorn House, 24 October – 20 November 2025

At Quorn House there were no exceedances of the PM₁₀ site trigger, and the period average was 8.5 µg/m³.

During this review period, trigger emails alerting staff to high PM₁₀ levels were sent on three days from the Hawcliffe Road Osiris. Details of the corresponding causes and investigations are provided in Table 3.1.

Table 3.1: Email alert responses, between 24 October – 20 November 2025 (using the trigger threshold, 125 µg/m³ for the 15-minute average)

Date of alert	Monitor	Details	Possible cause and investigation
27/10/2025	Hawcliffe Road	Exceedances from the southeast and south-southeast.	Asphalt non operational, processing operational – all dust suppression working correctly. Loadout supervisor identified dust from toastrack during transfer of stone – operation was stopped as a result.
28/10/2025	Hawcliffe Road	Exceedances from the southeast in the evening.	Asphalt non operational. Processing operational – all dust suppression working correctly, no issues identified. Loadout non operational, HME on break, rail not transferring.
13/11/2025	Hawcliffe Road	Exceedances recorded from the south-southeast in the evening.	Processing, rail transfer and asphalt all non operational. Visual inspection carried out at time of alerts and no issues identified. Loadout backshift supervisor continued to monitor. Alerts may have been related to calm weather leading to PM remaining

Date of alert	Monitor	Details	Possible cause and investigation
			airborne for an extended period of time. Direction of alert may have been impacted by calm weather.

3.2.2 PM_{2.5}

The results of PM_{2.5} monitoring at Hawcliffe Road and Quorn House are presented in Figure 3.5 and Figure 3.6. The dashed black line denotes the average concentration recorded over this period.

Additional PM_{2.5} monitoring data (collected by CBC and the Defra AURN monitoring network) are provided in Appendix B.

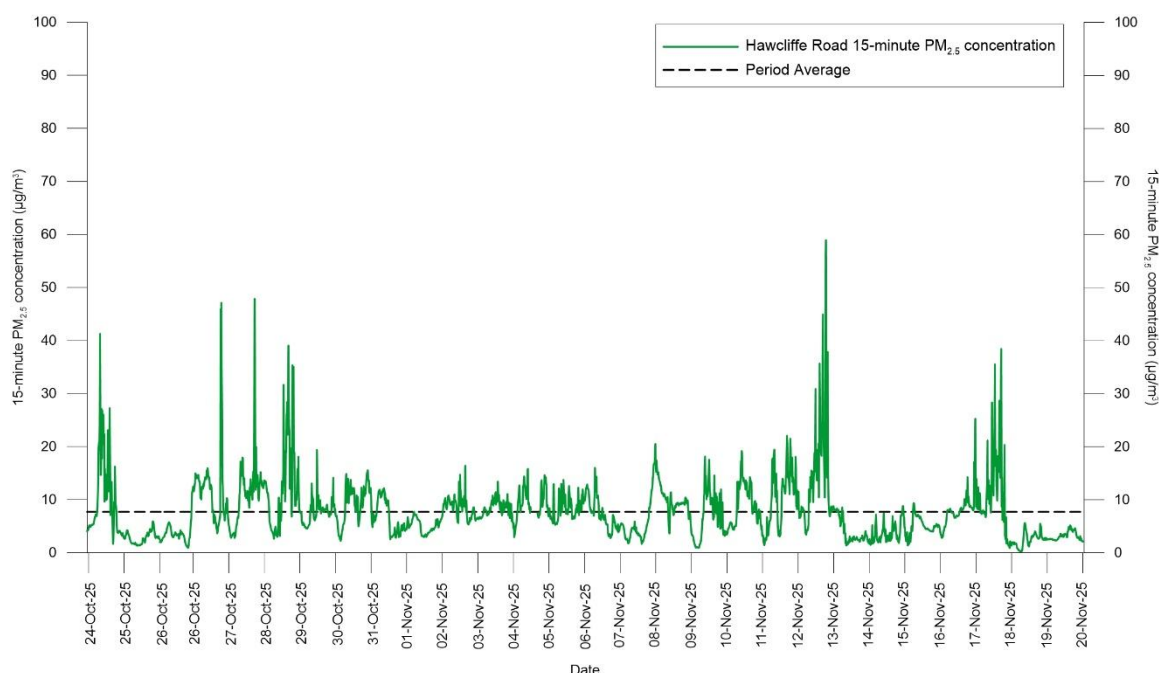


Figure 3.5: 15-minute mean PM_{2.5} concentration, Hawcliffe Road, 24 October – 20 November 2025

At Hawcliffe Road, the period average concentration was 7.7 µg/m³, whilst at Quorn House, the period average was 5.9 µg/m³. In general, PM_{2.5} concentrations recorded at Hawcliffe Road are more variable than at Quorn House (as shown by the increased frequency of spikes in the dataset); this is most likely due to its location on the site boundary and in a more built-up environment when compared to the rural location of Quorn House.

For this period, 57% of PM₁₀ recorded at Hawcliffe Road comprised PM_{2.5}, whilst it made up 70% at Quorn House.

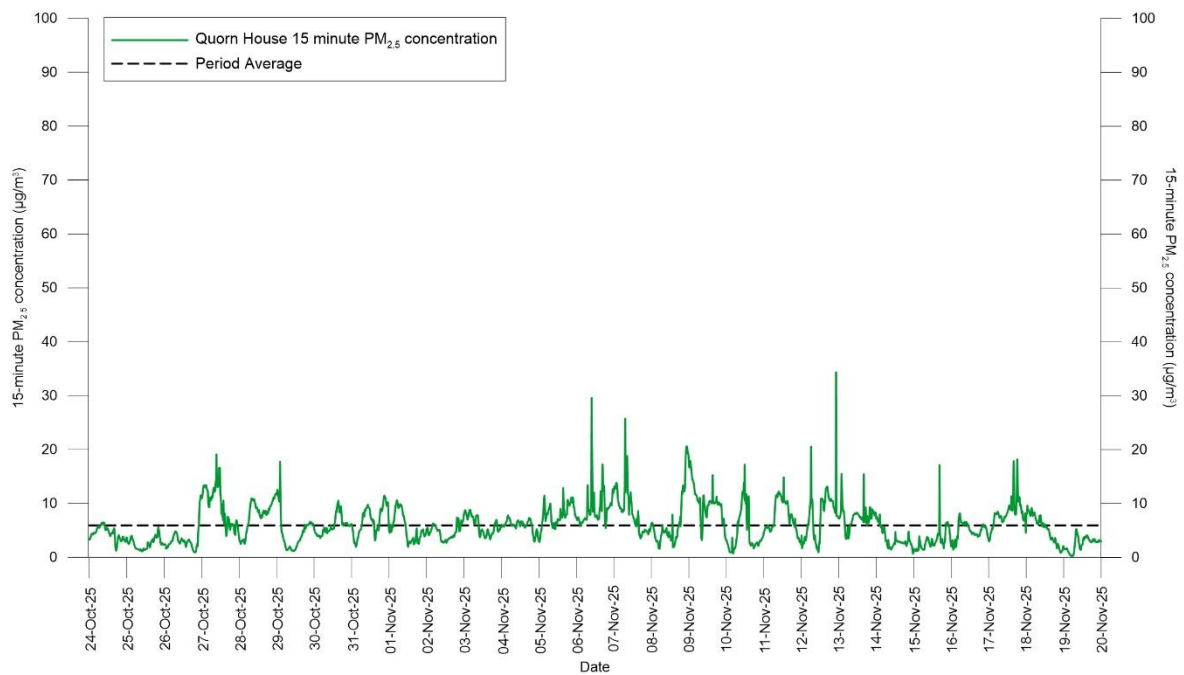


Figure 3.6: 15-minute mean PM_{2.5} concentration, Quorn House, 24 October – 20 November 2025

3.3 Visible dust

3.3.1 Deposited dust monitoring summary

The deposited dust data for 24 October – 20 November 2025 are summarised in Table 3.2. As outlined above, there is a site-wide threshold for investigation to identify the potential dust source/s, taking account of the directional data. Table 3.2 shows that, for the available data, deposited dust levels during 24 October – 20 November 2025 were within the site-specific threshold for all stations.

Table 3.2: Summary of deposited dust (undissolved solids), 24 October – 20 November 2025

Undissolved solids (mg/m ² /day)				
This month report start date:		24-Oct-25		
This month report end date:		20-Nov-25		
Receptor location	Nearest / appropriate dust monitoring point	Reported value	Trigger: $\geq 125^a$	Magnitude ^b
Swithland Lane; Rushey Lane; Kinchley Lane	Stn 1	14	No	Very Low
Swithland Lane; Rushey Lane; Kinchley Lane	Stn 1A	9	No	Very Low
Swithland Lane; Rushey Lane; Kinchley Lane	Stn 1B	15	No	Very Low
Mill Farm; Quorn House	Stn 3	20	No	Very Low
Woodside Farm, Leicester Road	Stn 4A	19	No	Very Low
Quorn Grange, Unitt Road, Northage Close, Quorn Park	Stn 4B	21	No	Very Low
Bond Lane; Crown Lane	Stn 5	15	No	Very Low
Sileby Road; Huston Close; Sileby Road (commercial)	Stn 6A	20	No	Very Low
Hawcliffe Road	Stn 9	68	No	Low
Glebe Close; Halstead Road (south); Halstead Road (north)	Stn 10	20	No	Very Low
Loughborough Road; River Soar (marina / caravan park)	Stn 11	16	No	Very Low
Meadow Farm Marina and Caravan Park	Stn 12	25	No	Very Low
Quorn House Park	Stn 13	17	No	Very Low

^a Trigger mass deposition and Effective Area Coverage rates as in Section 7.3, ZLFMS-AG008 Dust Management and Monitoring Plan (Updated), 2015

^b Magnitude of mass deposition rate assessed against typical rate for semi-rural areas (30 - 80 mg/m²/day)

Regarding dust deposition over time, the rates across the sampling area have varied considerably. Trends in dust deposition rates (as undissolved solids) for the previous 12 months, together with the site-wide dust threshold are illustrated in Figure 3.7.

In general, as would be expected, dust deposition rates are typically lower in winter months than in summer months. This trend is clearly seen for most monitoring points in Figure 3.7, with some exceptions. Dust deposition rates have been consistently below the ‘trigger limit’ at all sampling locations, with the exception of Stn 4A, which has exceeded the threshold on one occasion over the past 12 months. Details of the associated investigation can be found in the corresponding compliance report.

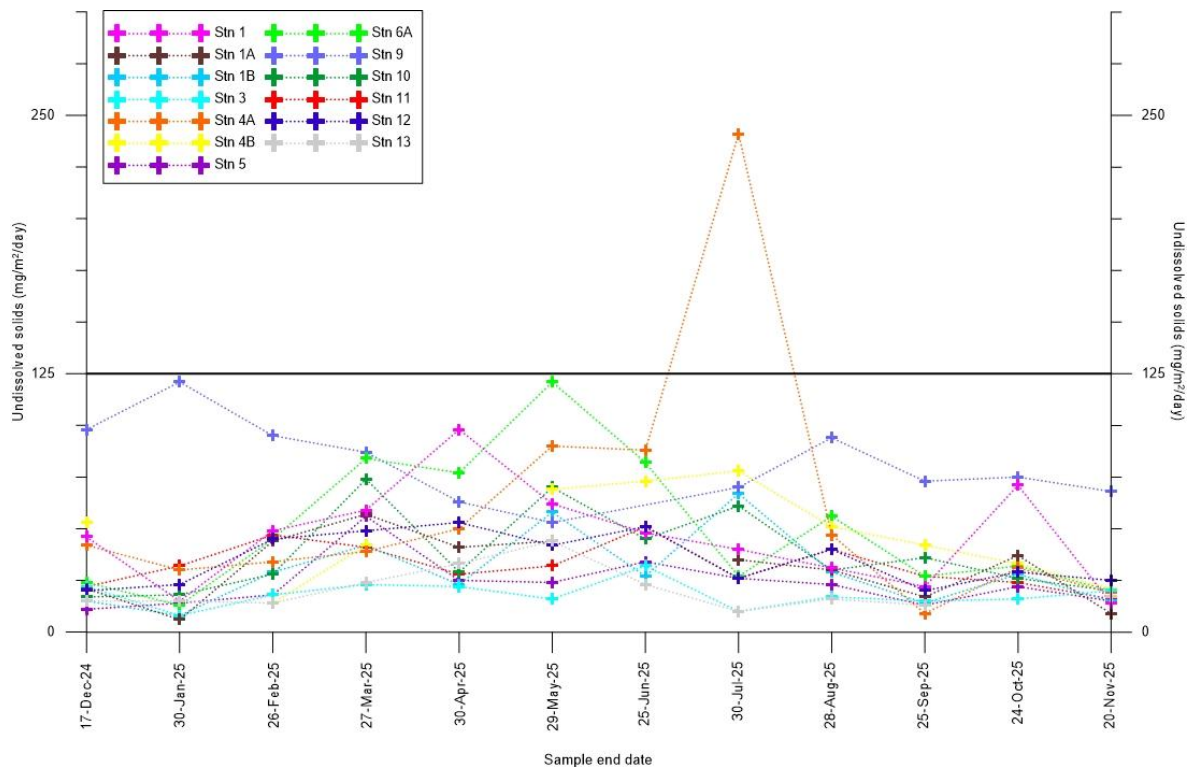


Figure 3.7: Dust deposition rates per sampling location over time (past 12 months)

3.3.2 Directional dust monitoring summary

The directional dust data for 24 October – 20 November 2025 are summarised in Table 3.3 and are presented graphically in Figure 3.8. As with deposited dust, the DMMP sets out a site-wide directional dust threshold. For directional dust soiling, 0.5 % Effective Area Coverage (EAC) per day is a trigger limit for investigation to identify the likely dust source/s, again taking account of the direction. Table 3.3 and Figure 3.8 show that during 24 October – 20 November 2025, all stations recorded Very Low dust flux from all directions.

Table 3.3: Summary of directional dust soiling, 24 October – 20 November 2025

Directional dust soiling (%EAC/day) by direction (°)										
This month report start date:		24-Oct-25								
This month report end date:		20-Nov-25								
Receptor location	Nearest / appropriate dust monitoring point		Direction (°)							
			0	45	90	135	180	225	270	315
Swithland Lane; Rushey Lane; Kinchley Lane	Stn 1	Reported value	0.1	0.1	0.1	0	0	0.1	0	0
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Swithland Lane; Rushey Lane; Kinchley Lane	Stn 1A	Reported value	0.1	0.1	0.1	0.1	0	0.1	0.1	0.1
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Swithland Lane; Rushey Lane; Kinchley Lane	Stn 1B	Reported value	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Mill Farm; Quorn House	Stn 3	Reported value	0.1	0.1	0.1	0.1	0.1	0	0	0
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Woodside Farm, Leicester Road	Stn 4A	Reported value	0	0.1	0.1	0.1	0	0.1	0.1	0.1
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Quorn Grange, Unitt Road, Northage Close, Quorn Park	Stn 4B	Reported value	0	0.1	0	0.1	0.1	0	0	0
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Bond Lane; Crown Lane	Stn 5	Reported value	0	0.1	0.1	0.1	0.1	0	0.1	0
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Sileby Road; Huston Close; Sileby Road (commercial)	Stn 6A	Reported value	0.1	0.1	0.1	0.1	0	0.1	0.1	0
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Hawcliffe Road	Stn 9	Reported value	0.1	0.1	0.1	0.1	0	0.1	0.1	0.1
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Glebe Close; Halstead Road (south); Halstead Road (north)	Stn 10	Reported value	0.1	0	0	0.1	0.1	0.1	0.1	0.1
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Loughborough Road; River Soar (marina / caravan park)	Stn 11	Reported value	0.1	0.1	0.1	0.1	0.1	0.1	0	0.1
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Meadow Farm Marina and Caravan Park	Stn 12	Reported value	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Quorn House Park	Stn 13	Reported value	0.1	0	0.1	0.1	0.1	0.1	0	0.1
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low

^a Trigger mass deposition and Effective Area Coverage rates as in Section 7.3, ZLFMS-AG008 Dust Management and Monitoring Plan (Updated), 2015

^b Magnitude of directional dust soiling derived from Beaman and Kingsbury, 1981

^c Direction/s not determined for daily EAC below 0.1%/day (very low soiling)

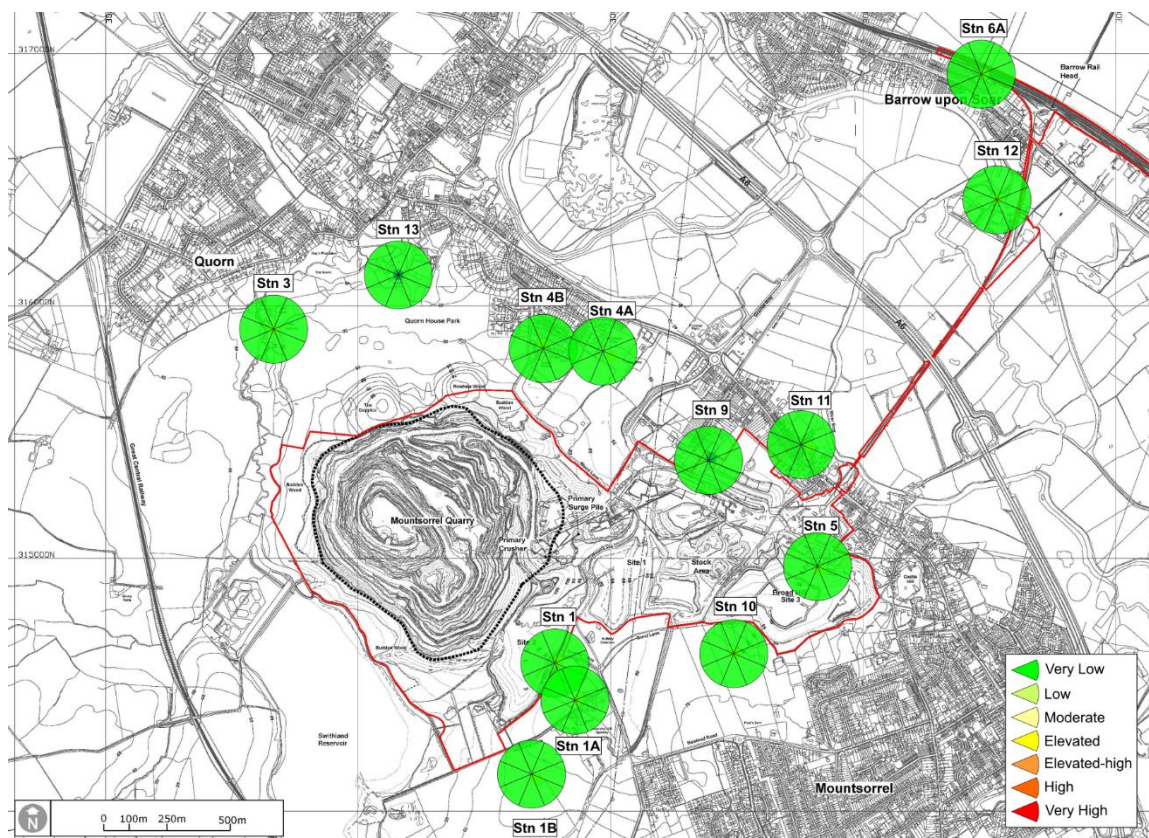


Figure 3.8: Directional dust soiling rose diagrams, 24 October – 20 November 2025

Table 3.4 shows that the average directional soiling rates have been at Very Low levels at most monitoring locations, for most directions, over the past year. Low average directional dust flux levels were recorded from the southwest and west at Stn 9, and from the east and southwest at Stn 6A.

Table 3.4: Running average directional dust soiling (past 12 months)

Receptor location	Nearest / appropriate dust monitoring point		Direction (°)							
			0	45	90	135	180	225	270	315
Swithland Lane; Rushey Lane; Kinchley Lane	Stn 1	Average value	0.1	0.1	0.1	0	0.1	0.1	0.1	0.1
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Swithland Lane; Rushey Lane; Kinchley Lane	Stn 1A	Average value	0.1	0.1	0.1	0	0	0.1	0.1	0.1
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Swithland Lane; Rushey Lane; Kinchley Lane	Stn 1B	Average value	0.1	0	0	0.1	0.1	0.1	0.1	0.1
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Mill Farm; Quorn House	Stn 3	Average value	0.1	0.1	0.1	0.1	0.1	0.1	0	0
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Woodside Farm, Leicester Road	Stn 4A	Average value	0	0.1	0.1	0.1	0	0.1	0.1	0.1
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Quorn Grange, Unitt Road, Northage Close, Quorn Park	Stn 4B	Average value	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Bond Lane; Crown Lane	Stn 5	Average value	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Sileby Road; Huston Close; Sileby Road (commercial)	Stn 6A	Average value	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1
		Magnitude ^b	Very Low	Very Low	Low	Very Low	Very Low	Low	Very Low	Very Low
Hawcliffe Road	Stn 9	Average value	0.1	0.1	0.1	0.1	0	0.2	0.2	0.1
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Low	Low	Very Low
Glebe Close; Halstead Road (south); Halstead Road (north)	Stn 10	Average value	0.1	0	0	0.1	0.1	0.1	0.1	0.1
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Loughborough Road; River Soar (marina / caravan park)	Stn 11	Average value	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Meadow Farm Marina and Caravan Park	Stn 12	Average value	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Quorn House Park	Stn 13	Average value	0.1	0	0.1	0.1	0	0.1	0.1	0.1
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low

^a Trigger mass deposition and Effective Area Coverage rates as in Section 7.3, ZLFMS-AG008 Dust Management and Monitoring Plan (Updated), 2015

^b Magnitude of directional dust soiling derived from Beaman and Kingsbury, 1981

^c Direction/s not determined for daily EAC below 0.1%/day (very low soiling)

4 Complaints

During November 2025, it is understood that no dust complaints were received by the quarry.

Appendix A: Off-site PM₁₀ monitoring (CBC and AURN)

The daily average PM₁₀ concentrations recorded by the CBC Zephyr are presented below in Figure A.1, alongside similar data from the Defra Automatic Urban and Rural Network (AURN) station in Leicester University².

For the monitoring period 24 October – 20 November 2025, the CBC Zephyr achieved an 89 % data capture rate for PM₁₀, and Leicester AURN station had a data capture of 100%.

For the available data, the average daily PM₁₀ concentration for this monitoring period at the CBC Zephyr (Hawcliffe Road) was 13.6 µg/m³. At the Leicester AURN the average daily PM₁₀ concentration was 12.5 µg/m³ for the monitoring period.

During this monitoring period, the average daily PM₁₀ concentrations recorded from the onsite monitors were similar to the CBC Zephyr and Leicester AURN, with 13.6 µg/m³ at Hawcliffe Road and 8.5 µg/m³ at Quorn House.

Between 24 October – 20 November 2025 there were no recorded instances where the daily average PM₁₀ concentrations exceeded 50 µg/m³ at the CBC Zephyr or at the Leicester AURN.

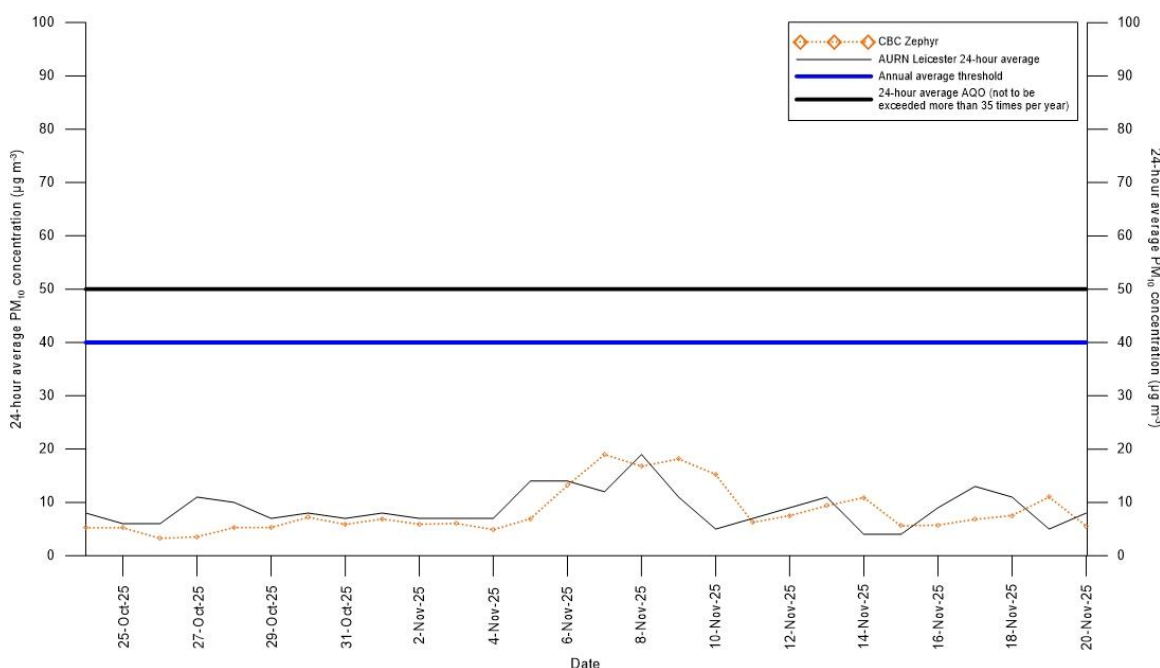


Figure A.1: Daily average PM₁₀ concentration, CBC Zephyr and Leicester AURN, 24 October – 20 November 2025

² <http://uk-air.defra.gov.uk/networks/network-info?view=aurn>

Appendix B: Off-site PM_{2.5} monitoring (CBC and AURN)

The daily average PM_{2.5} concentrations recorded by the CBC Zephyr are presented below in Figure B.1, alongside similar data from the Defra Automatic Urban and Rural Network (AURN) station in Leicester University.

For the monitoring period 24 October – 20 November 2025, there was an 89 % data capture recorded from the CBC Zephyr and 100 % data capture rate from the Leicester AURN station. For the available data the average daily PM_{2.5} concentration for this monitoring period at the CBC Zephyr was 8.9 µg/m³. At the Leicester AURN the average daily PM_{2.5} concentration was 8.0 µg/m³ for the monitoring period.

Onsite PM_{2.5} concentrations were similar at Hawcliffe Road (7.7 µg/m³) and slightly lower at Quorn House (5.9 µg/m³) compared to off-site averages of 8.9 µg/m³ at CBC Zephyr and 8.0 µg/m³ at Leicester AURN, likely reflecting the differences in locations.

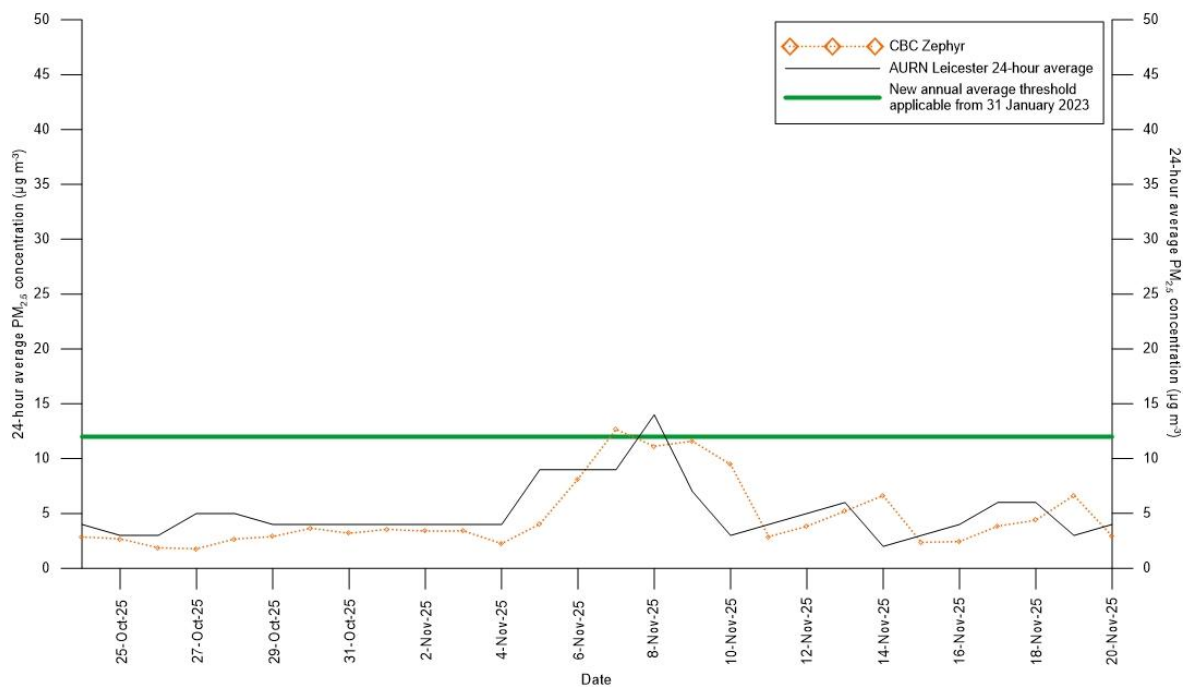


Figure B.1: Daily average PM_{2.5} concentrations, CBC Zephyr and Leicester AURN, 24 October – 20 November 2025

Appendix C: Off-site PM₁₀ and PM_{2.5} Annual Summary

Table C.1: Average PM₁₀ concentrations at CBC Zephyr and Leicester AURN for 12 months up to 20 November 2025.

	AURN Leicester University	CBC Zephyr
Valid data capture	100 %	89 %
Period average PM ₁₀ concentration	12.3 µg/m ³	13.1 µg/m ³
Percentage of annual AQO (40 µg/m ³)	30.6 %	32.8 %
No. exceedances of daily AQO (50 µg/m ³ , not to be exceeded more than 35 times per calendar year)	1	3

Table C.2: Average PM_{2.5} concentrations at CBC Zephyr and Leicester AURN for 12 months up to 20 November 2025.

	AURN Leicester University	CBC Zephyr
Valid data capture	100 %	89 %
Period average PM _{2.5} concentration	7.8 µg/m ³	8.6 µg/m ³
Percentage of interim target (12 µg/m ³ as an annual average)	65 %	72 %



Dust, Particulate Matter and Weather Monitoring Report: December 2025

Mountsorrel Quarry

January, 2026

Tarmac



Document Control Sheet

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1 Introduction

Mountsorrel Quarry has a comprehensive Dust Management and Monitoring Plan (DMMP). The DMMP was developed in 2011 and is subject to regular review and revision, in consultation between Tarmac and the local regulators (Leicestershire County Council (LCC) and Charnwood Borough Council (CBC)).

The DMMP is enacted through the quarry Site Improvement Plan (SIP). The SIP sets out a programme of actions to reduce the environmental impact of specific areas of the site operation, and is updated regularly by quarry management, with support from DustScanAQ through regular site visits and quarterly reviews with LCC and CBC.

Section 7.5 of the DMMP requires that a monthly summary and review of dust and particulate matter monitoring is prepared and circulated with LCC, CBC and the Environment Agency.

This report details the results of dust, particulate matter and weather monitoring around Mountsorrel Quarry during the period 20 November – 17 December 2025

1.1 Report scope

The intention of this report is to summarise dust and particulate matter monitoring results for the given period and compare them against site-specific alert limits and thresholds. This report also details the results of any investigation carried out into elevated dust or particulate matter levels, as prompted by an exceedance of alert limits or thresholds.

1.2 Dust definitions

'Dust' is generally regarded as particulate matter up to 75 µm (micron) diameter and can be considered in two categories. Fine dust, essentially particles up to 10 µm, is commonly referred to as PM₁₀ and is measured to agreed standards and forms part of the national Air Quality Objectives (AQO). The AQO for PM₁₀ is currently 50 µg/m³ for the 24-hour mean, not to be exceeded 35 times per year and 40 µg/m³ for the annual mean. Particles up to 2.5 µm in diameter are referred to as PM_{2.5}. The interim target for PM_{2.5} is 12 µg/m³ for the annual mean (to be achieved by 2028), whilst the legal AQO for PM_{2.5} is 10 µg/m³ for the annual mean (to be achieved by 2040) as per The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023¹.

It may be noted that the above Regulations relate to average particle concentrations in Local Authority districts thus do not apply to any specific industrial or other operation, such as Mountsorrel Quarry, and are included for reference. Coarser dust (essentially particles greater than 10 µm) is generally regarded as 'nuisance dust' and can be associated with annoyance, although there are no official standards (such as AQO) for dust annoyance.

¹ Statutory Instrument. (2023), 'The Environmental Targets (Fine Particulate Matter) (England) Regulations', No. 96. King's Printer of Acts of Parliament

2 Sampler locations

As shown in Figure 2.1 and Table 2.1, dust, particulate matter and weather conditions are measured at a number of locations around site and the surrounding area:

- Directional and depositional dust: currently monitored at 13 locations;
- Particulate matter: currently monitored at two locations;
- Weather conditions: currently monitored at one location.

The majority of the dust samplers around Mountsorrel Quarry comprise the 'Frisbee-type' deposition gauge combined with an adhesive 'sticky pad' directional gauge. These samplers are used to monitor 'nuisance' dust and samples from these instruments are collected on a monthly basis.

For particulate matter, Turnkey Osiris samplers are located at Stn 9 (Hawcliffe Road) and at Stn 13 (Quorn House). These recognised and certificated 'indicative' real-time devices are connected to their own wind vane and anemometer and provide near-instantaneous directional PM₁₀, PM_{2.5} and PM₁ data directly to the quarry management team.

A weather station is located at the site offices off Wood Lane and collects a range of weather parameters over fifteen-minute intervals. Data from the weather station are available to the quarry management by means of a dedicated modem connection to the internet. Due to a malfunctioning battery, the station had been offline from 17 April; however, as of 08 October the device is now fully functional again.

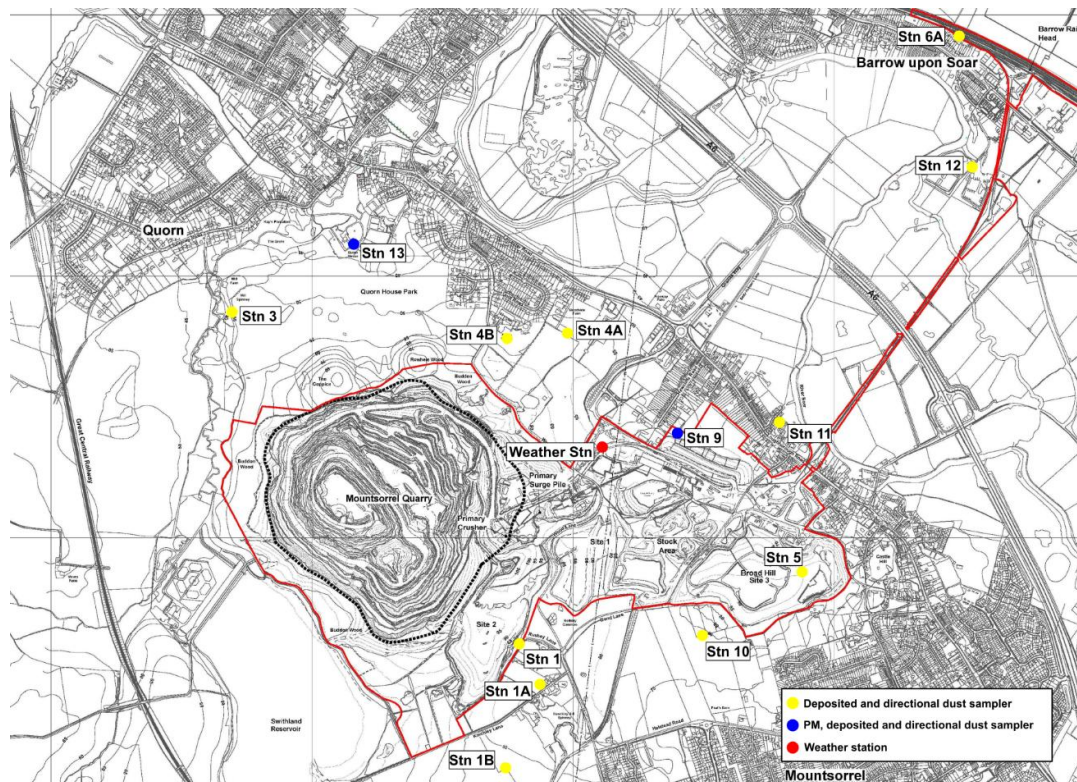


Figure 2.1: Particulate matter, dust and weather monitoring locations, Mountsorrel Quarry

Table 2.1: Particulate matter, dust and weather monitoring locations, Mountsorrel Quarry

Sampler reference	Easting	Northing	Locality monitored
Stn 1	456787	314586	Swithland Lane; Rushey Lane; Kinchley Lane
Stn 1A	456882	314449	Swithland Lane; Rushey Lane; Kinchley Lane
Stn 1B	456745	314112	Swithland Lane; Rushey Lane; Kinchley Lane
Stn 3	455685	315844	Mill Farm; Quorn House
Stn 4A	456966	315787	Woodside Farm; Leicester Road
Stn 4B	456732	315767	Quorn Grange, Unitt Road, Northage Close, Quorn Park
Stn 5	457872	314875	Bond Lane; Crown Lane
Stn 6A	458655	316785	Sileby Road; Huston Close; Sileby Road (commercial)
Stn 9 (inc. PM)	457374	315398	Hawcliffe Road
Stn 10	457509	314627	Glebe Close; Halstead Road (south); Halstead Road (north)
Stn 11	457835	315504	Loughborough Road; River Soar (marina / caravan park)
Stn 12	458551	316457	Meadow Farm Marina and Caravan Park
Stn 13 (incl. PM)	456154	316087	Northage Close, Meeting Street
Weather Station	457126	315376	Wood Lane Site Offices

Charnwood Borough Council (CBC) is responsible for the monitoring of air quality within the borough and prepares Air Quality Annual Status Reports (ASRs) for submission to Defra. It operates a Zephyr air quality monitor which is located within the Leicestershire County Council (LCC) depot at the southern end of Hawcliffe Road, in close proximity to the Osiris device at Stn 9. This device measures a number of pollutants including PM₁₀ and PM_{2.5}. The purpose of this monitoring is for CBC to compare measured concentrations against the relevant AQOs for these pollutants.

For additional context, the latest PM₁₀ and PM_{2.5} monitoring data from CBC are summarised in Appendix A and Appendix B, whilst a summary of the latest 12 months of data are provided in Appendix C for reference.

2.1 Alert thresholds and response procedures

To help the site reduce its impact on the surrounding area, a number of alert thresholds have been calculated, as outlined in Table 2.2.

Table 2.2: Alert thresholds

Pollutant	Threshold	Averaging period	Applies to
PM ₁₀	125 µg/m ³	15 minutes	Stn 9 (Hawcliffe Road), Stn 13 (Quorn House)
Deposited dust	125 mg/m ² /day	1 month	All deposited dust monitoring locations

For particulate matter (PM₁₀) an alert threshold of 125 µg/m³ for the 15-minute average has been in use for several years as a trigger limit for investigation to identify potential on-site issues.

Analysis of data from the site has demonstrated that PM₁₀ provides a stronger 'site signal' than PM_{2.5}. The purpose of alerts is to provide site managers with information regarding elevated PM₁₀ concentrations, allowing them to investigate and make operational changes if necessary. An alert threshold has therefore not been set for PM_{2.5} to prevent duplication.

PM₁₀ and PM_{2.5} concentrations recorded by CBC at the southern end of Hawcliffe Road and by Defra through the Automatic Urban and Rural Network (AURN) at Leicester University are presented in Appendix A and Appendix B respectively. Data from both locations have been compared against relevant Air Quality Objectives (AQOs) for PM₁₀ and PM_{2.5}.

For deposited dust, the DMMP sets out a site-wide deposited dust threshold of 125 mg/m²/day 'undissolved solids' as a trigger limit for investigation to identify the potential dust source/s, taking account of the directional data.

3 Results

3.1 Weather monitoring

Weather conditions can have a significant effect on the potential for dust propagation from a mineral site. Of particular importance are wind speeds, wind direction, and precipitation. Dust can be carried from a source towards receptors (such as nearby homes and other businesses) according to the strength and direction of wind. Precipitation is recognised to suppress dust and 0.2 mm antecedent rainfall is considered sufficient to suppress windblown dust for a number of hours.

The key weather data which might affect dust propagation (wind speed, wind direction, total daily precipitation and average daily temperature) for this reporting period are summarised in Figure 3.1 and Figure 3.2.

This monitoring period experienced low temperatures at the start, progressing into sustained milder temperatures towards the end of the month. The maximum average daily temperature was 12.4 °C, recorded on 09 December and the minimum average daily temperature was 1.3 °C, recorded on 20 November. Precipitation was recorded on 50 % of days during this period, with virtually all precipitation occurring before the start of December. A 10-day dry period was recorded from 08 – 17 December; this lack of precipitation may have increased the risk of dust propagation during this period.

As seen in Figure 3.2, winds were mostly calm to moderate in speed (>0.5 – 6 m/s) and were predominantly recorded from the south. This may have resulted in an increased potential for dust propagation to the north during 20 November – 17 December 2025.

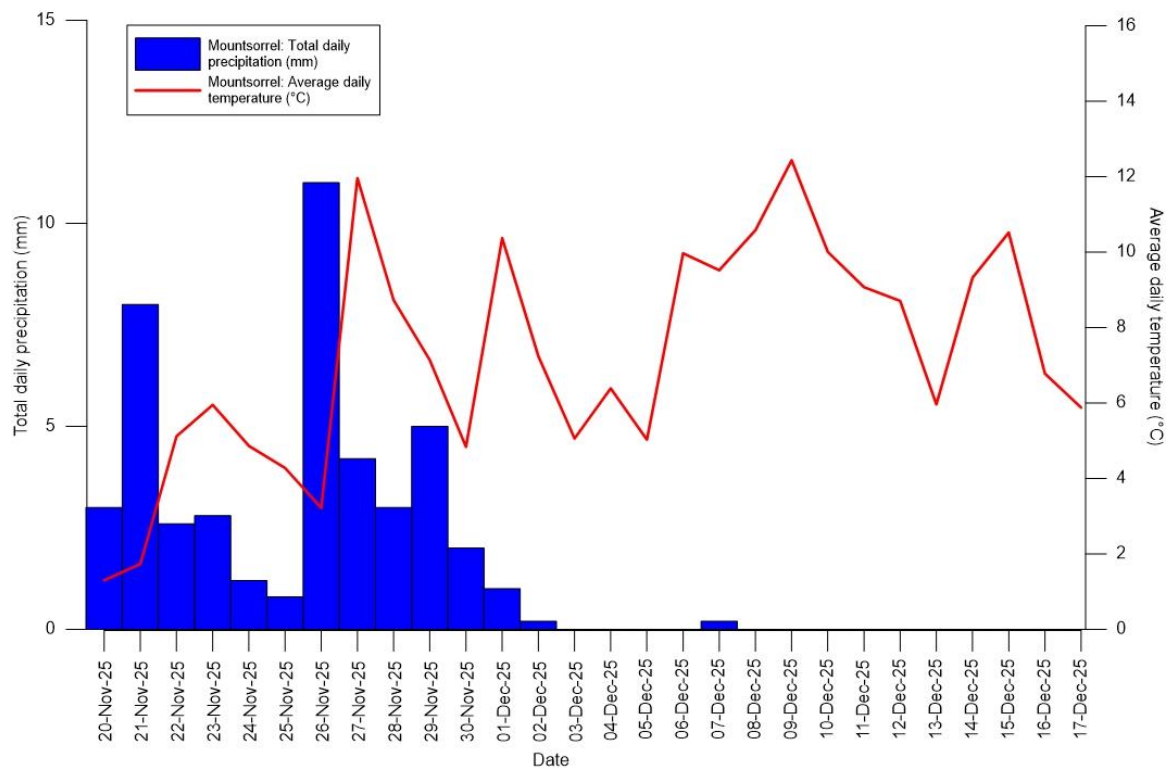


Figure 3.1: Total daily precipitation and average daily temperature, Mountsorrel Quarry, 24 20 November – 17 December 2025

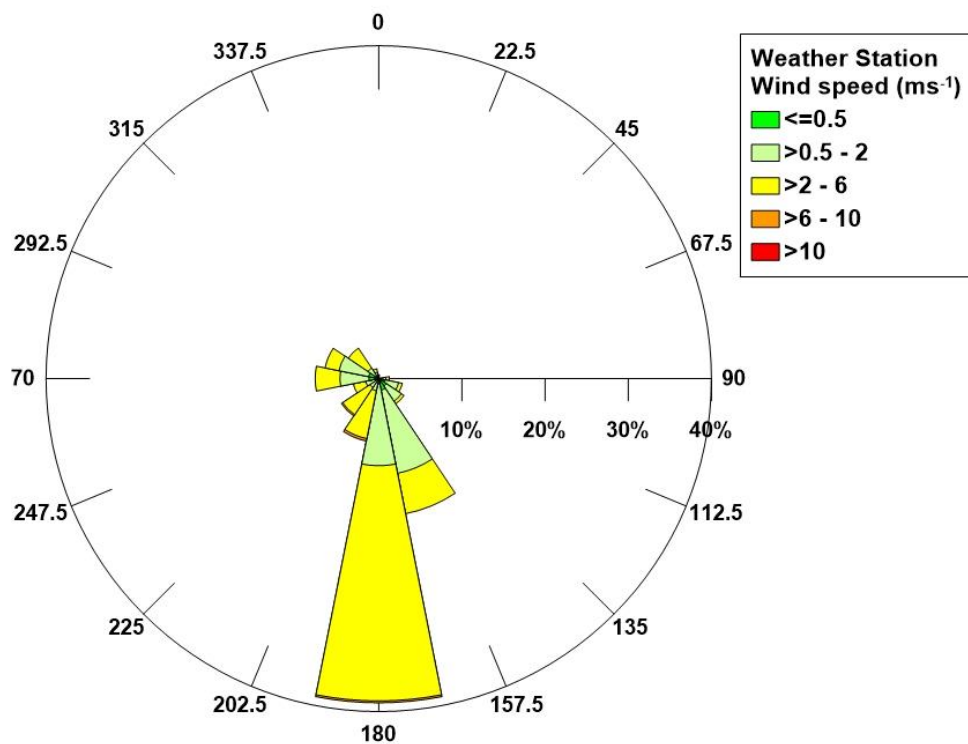


Figure 3.2: Wind rose, Mountsorrel Quarry, 20 November – 17 December 2025

3.2 Particulate matter

3.2.1 PM₁₀

The available 15-minute data from the period of review are presented for both monitoring locations in Figure 3.3 and Figure 3.4 respectively. The red line denotes the site trigger level (125 µg/m³ over the 15-minute average), whilst the dashed black line denotes the average concentration recorded over this period.

Additional PM₁₀ monitoring data (collected by CBC and the Defra AURN monitoring network) are provided in Appendix A.

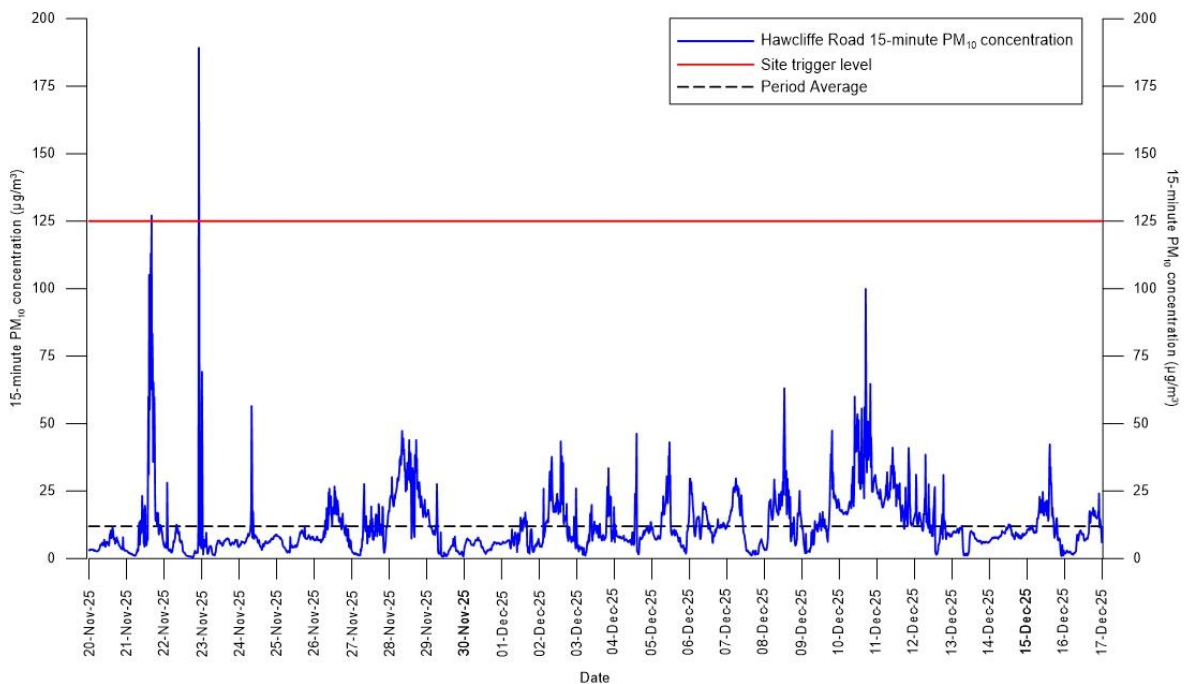


Figure 3.3: 15-minute mean PM₁₀ concentration, Hawcliffe Road, 20 November – 17 December 2025

Figure 3.3 indicates that the period average concentration at the Hawcliffe Road sampler for this period was 11.98 µg/m³, with the alert threshold being exceeded on two days during this monitoring period. Details of the exceedances are provided in Table 3.1.

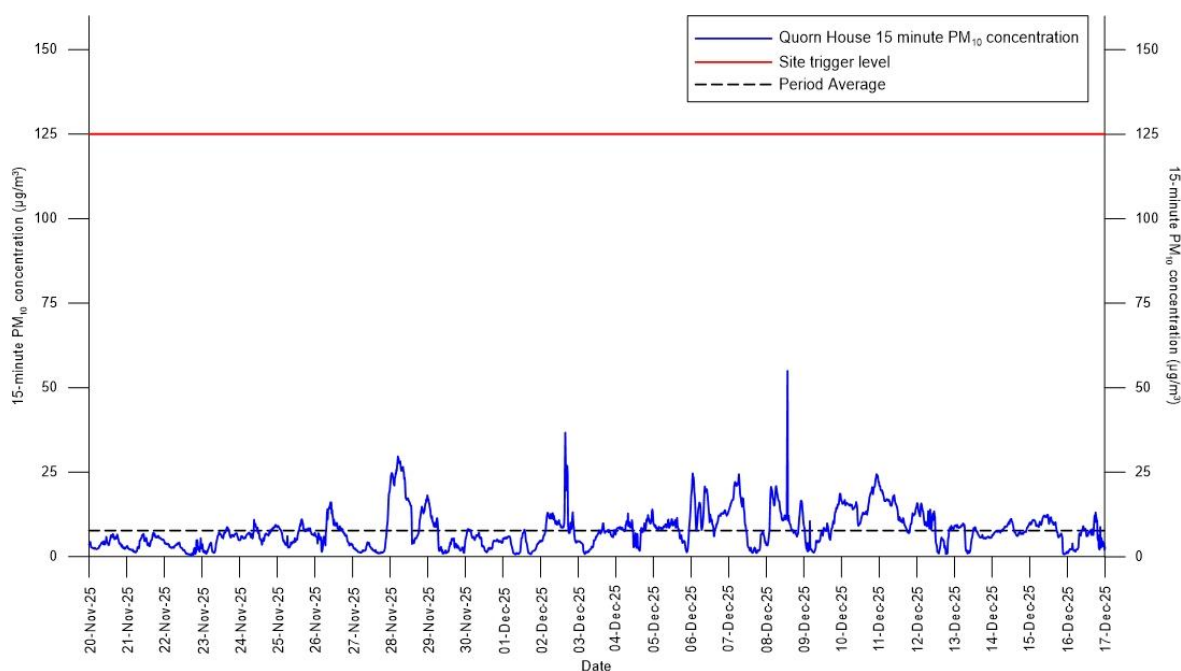


Figure 3.4: 15-minute mean PM₁₀ concentration, Quorn House, 20 November – 17 December 2025

At Quorn House there were no exceedances of the PM₁₀ site trigger, and the period average was 7.72 µg/m³.

During this review period, trigger emails alerting staff to high PM₁₀ levels were sent on two days from the Hawcliffe Road Osiris. Details of the corresponding causes and investigations are provided in Table 3.1.

Table 3.1: Email alert responses, between 20 November – 17 December 2025 (using the trigger threshold, 125 µg/m³ for the 15-minute average)

Date of alert	Monitor	Details	Possible cause and investigation
21/11/2025	Hawcliffe Road	Exceedances from the south-southeast at 16:00	Loadout making washed ballast and material being sent to rail. Loadout manager could not identify any issues on site. Production operating as normal. No issues reported by staff, and no issues identified during dust inspection
22/11/2025	Hawcliffe Road	Exceedances from the south-southeast at 22:15	Only asphalt team on site at time of alert. Dry tip material (which was still warm) was being relocated primary storage area which had reached capacity. Action: asphalt team to ensure that dry tip material is not moved whilst warm, and weather conditions are to be assessed before completing task.

3.2.2 PM_{2.5}

The results of PM_{2.5} monitoring at Hawcliffe Road and Quorn House are presented in Figure 3.5 and Figure 3.6. The dashed black line denotes the average concentration recorded over this period.

Additional PM_{2.5} monitoring data (collected by CBC and the Defra AURN monitoring network) are provided in Appendix B.

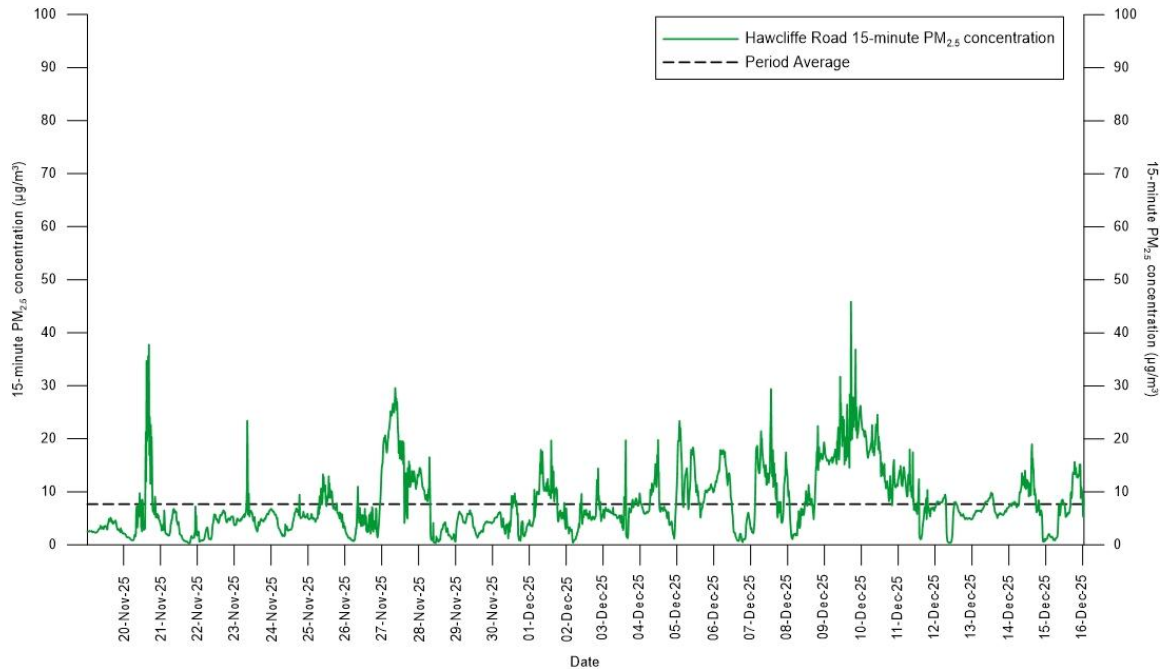


Figure 3.5: 15-minute mean PM_{2.5} concentration, Hawcliffe Road, 20 November – 17 December 2025

At Hawcliffe Road, the period average concentration was 7.7 µg/m³, whilst at Quorn House, the period average was 6.4 µg/m³. In general, PM_{2.5} concentrations recorded at Hawcliffe Road experienced greater fluctuations than at Quorn House (as shown by the increased frequency of spikes in the dataset); this is most likely due to its location on the site boundary and in a more built-up environment when compared to the rural location of Quorn House.

For this period, 64% of PM₁₀ recorded at Hawcliffe Road comprised PM_{2.5}, whilst it made up 83% at Quorn House.

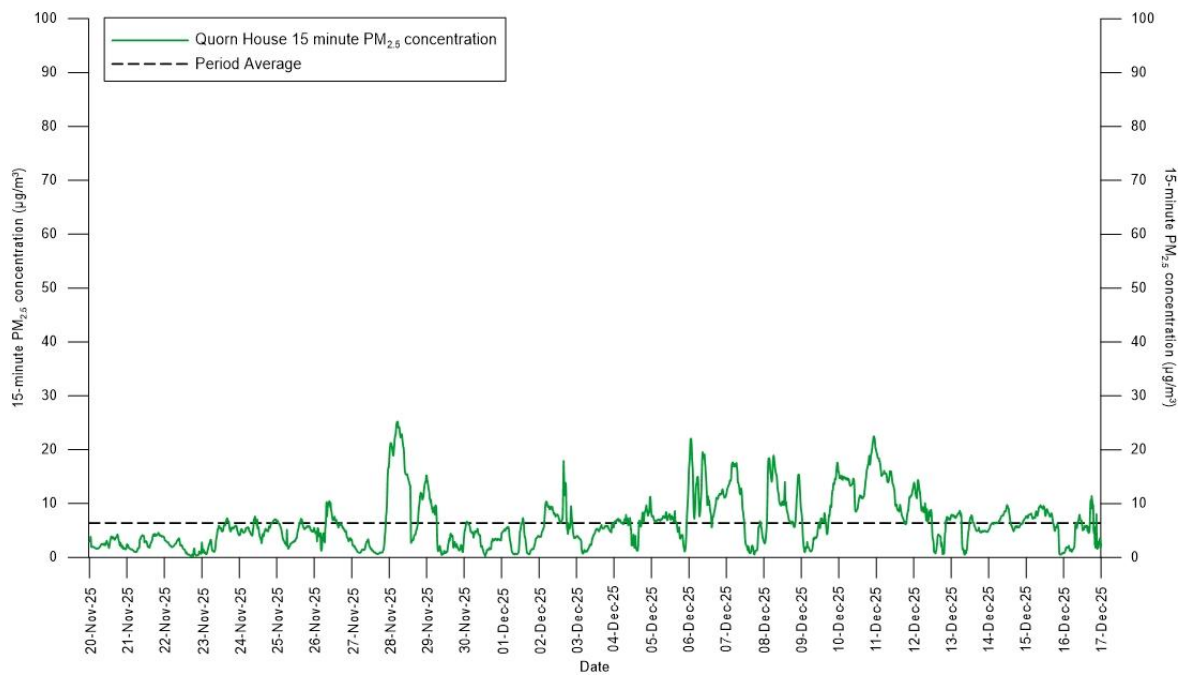


Figure 3.6: 15-minute mean PM_{2.5} concentration, Quorn House, 20 November – 17 December 2025

3.3 Visible dust

3.3.1 Deposited dust monitoring summary

The deposited dust data for 20 November – 17 December 2025 are summarised in Table 3.2. As outlined above, there is a site-wide threshold for investigation to identify the potential dust source/s, taking account of the directional data. Table 3.2 shows that, for the available data, deposited dust levels during 20 November – 17 December 2025 were within the site-specific threshold for all stations.

Table 3.2: Summary of deposited dust (undissolved solids), 20 November – 17 December 2025

Undissolved solids (mg/m ² /day)				
This month report start date:		20-Nov-25		
This month report end date:		17-Dec-25		
Receptor location	Nearest / appropriate dust monitoring point	Reported value	Trigger: $\geq 125^a$	Magnitude ^b
Swithland Lane; Rushey Lane; Kinchley Lane	Stn 1	51	No	Low
Swithland Lane; Rushey Lane; Kinchley Lane	Stn 1A	12	No	Very Low
Swithland Lane; Rushey Lane; Kinchley Lane	Stn 1B	19	No	Very Low
Mill Farm; Quorn House	Stn 3	15	No	Very Low
Woodside Farm, Leicester Road	Stn 4A	31	No	Very Low
Quorn Grange, Unitt Road, Northage Close, Quorn Park	Stn 4B	26	No	Very Low
Bond Lane; Crown Lane	Stn 5	15	No	Very Low
Sileby Road; Huston Close; Sileby Road (commercial)	Stn 6A	14	No	Very Low
Hawcliffe Road	Stn 9	76	No	Low
Glebe Close; Halstead Road (south); Halstead Road (north)	Stn 10	15	No	Very Low
Loughborough Road; River Soar (marina / caravan park)	Stn 11	16	No	Very Low
Meadow Farm Marina and Caravan Park	Stn 12	15	No	Very Low
Quorn House Park	Stn 13	7	No	Very Low

^a Trigger mass deposition and Effective Area Coverage rates as in Section 7.3, ZLFMS-AG008 Dust Management and Monitoring Plan (Updated), 2015

^b Magnitude of mass deposition rate assessed against typical rate for semi-rural areas (30 - 80 mg/m²/day)

Regarding dust deposition over time, the rates across the sampling area have varied considerably. Trends in dust deposition rates (as undissolved solids) for the previous 12 months, together with the site-wide dust threshold are illustrated in Figure 3.7.

In general, as would be expected, dust deposition rates are typically lower in winter months than in summer months. This trend is clearly seen for most monitoring points in Figure 3.7, with some exceptions. Dust deposition rates have been consistently below the 'trigger limit' at all sampling locations, with the exception of Stn 4A, which has exceeded the threshold on one occasion over the past 12 months. Details of the associated investigation can be found in the corresponding compliance report.

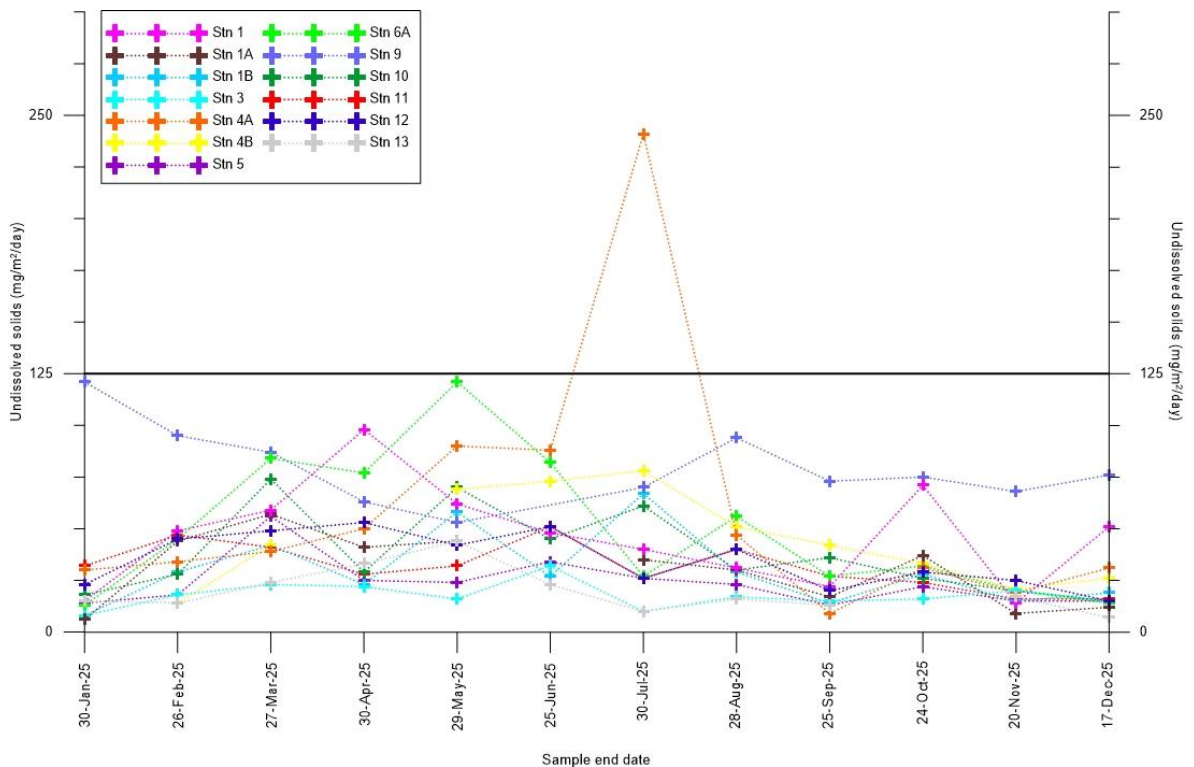


Figure 3.7: Dust deposition rates per sampling location over time (past 12 months)

3.3.2 Directional dust monitoring summary

The directional dust data for 20 November – 17 December 2025 are summarised in Table 3.3 and are presented graphically in Figure 3.8. As with deposited dust, the DMMP sets out a site-wide directional dust threshold. For directional dust soiling, 0.5 % Effective Area Coverage (EAC) per day is a trigger limit for investigation to identify the likely dust source/s, again taking account of the direction. Table 3.3 and Figure 3.8 show that 20 November – 17 December 2025, all stations recorded Very Low to Low dust flux from every direction.

Table 3.3: Summary of directional dust soiling, 20 November – 17 December

Directional dust soiling (%EAC/day) by direction (°)										
This month report start date:		20-Nov-25								
This month report end date:		17-Dec-25								
Receptor location	Nearest / appropriate dust monitoring point		Direction (°)							
			0	45	90	135	180	225	270	315
Swithland Lane; Rushey Lane; Kinchley Lane	Stn 1	Reported value	0	0	0	0.1	0	0.1	0.1	0
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Swithland Lane; Rushey Lane; Kinchley Lane	Stn 1A	Reported value	0	0.1	0	0	0	0	0.1	0
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Swithland Lane; Rushey Lane; Kinchley Lane	Stn 1B	Reported value	0	0.1	0.1	0.1	0.1	0.1	0.1	0
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Mill Farm; Quorn House	Stn 3	Reported value	0	0.1	0.1	0.1	0.1	0.1	0	0.1
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Woodside Farm, Leicester Road	Stn 4A	Reported value	0	0	0	0.1	0	0.2	0.2	0.1
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Low	Low	Very Low
Quorn Grange, Unitt Road, Northage Close, Quorn Park	Stn 4B	Reported value	0	0	0.1	0.1	0.1	0.1	0.1	0.1
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Bond Lane; Crown Lane	Stn 5	Reported value	0	0	0	0	0.1	0.1	0.1	0.1
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Sileby Road; Huston Close; Sileby Road (commercial)	Stn 6A	Reported value	0	0.1	0.1	0	0	0.1	0.1	0.1
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Hawcliffe Road	Stn 9	Reported value	0	0.1	0.1	0.1	0	0.1	0.2	0.1
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Low	Very Low
Glebe Close; Halstead Road (south); Halstead Road (north)	Stn 10	Reported value	0	0	0	0.1	0.1	0.1	0.1	0.1
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Loughborough Road; River Soar (marina / caravan park)	Stn 11	Reported value	0.1	0	0.1	0	0.1	0.1	0.1	0.1
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Meadow Farm Marina and Caravan Park	Stn 12	Reported value	0	0.1	0.1	0	0.1	0.1	0.1	0.1
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Quorn House Park	Stn 13	Reported value	0	0.1	0.1	0.1	0.1	0.1	0.1	0
		Trigger: $\geq 0.5^a$	No	No	No	No	No	No	No	No
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low

^a Trigger mass deposition and Effective Area Coverage rates as in Section 7.3, ZLFMS-AG008 Dust Management and Monitoring Plan (Updated), 2015

^b Magnitude of directional dust soiling derived from Beaman and Kingsbury, 1981

^c Direction/s not determined for daily EAC below 0.1%/day (very low soiling)

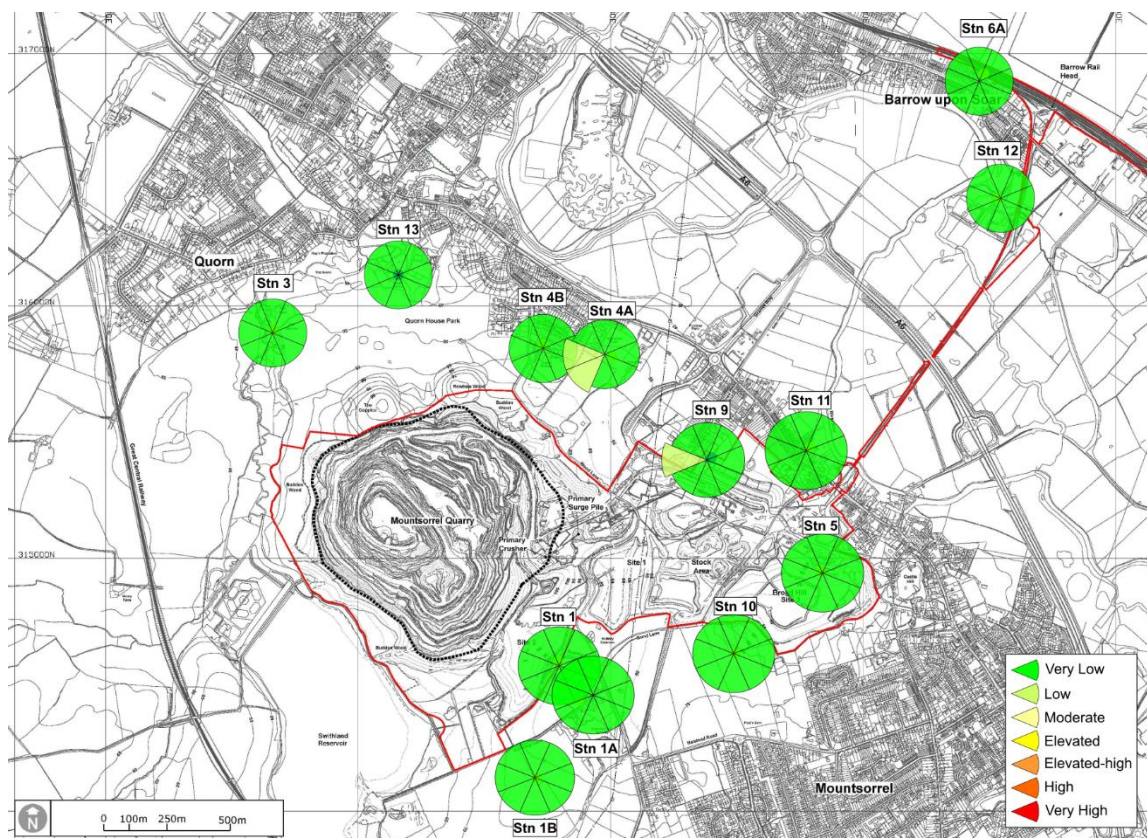


Figure 3.8: Directional dust soiling rose diagrams, 20 November – 17 December 2025

Table 3.4 shows that the average directional soiling rates have been at Very Low levels at most monitoring locations, for most directions, over the past year. Low average directional dust flux levels were recorded from the west at Stn 4A, and from the southwest and west at Stn 9.

Table 3.4: Running average directional dust soiling (past 12 months)

Receptor location	Nearest / appropriate dust monitoring point		Direction (°)							
			0	45	90	135	180	225	270	315
Swithland Lane; Rushey Lane; Kinchley Lane	Stn 1	Average value	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Swithland Lane; Rushey Lane; Kinchley Lane	Stn 1A	Average value	0.1	0.1	0.1	0	0	0.1	0.1	0.1
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Swithland Lane; Rushey Lane; Kinchley Lane	Stn 1B	Average value	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Mill Farm; Quorn House	Stn 3	Average value	0	0.1	0.1	0.1	0.1	0	0	0
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Woodside Farm, Leicester Road	Stn 4A	Average value	0	0.1	0.1	0.1	0	0.1	0.1	0.1
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Quorn Grange, Unitt Road, Northage Close, Quorn Park	Stn 4B	Average value	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Bond Lane; Crown Lane	Stn 5	Average value	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Sileby Road; Huston Close; Sileby Road (commercial)	Stn 6A	Average value	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1
		Magnitude ^b	Very Low	Very Low	Low	Very Low	Very Low	Low	Very Low	Very Low
Hawcliffe Road	Stn 9	Average value	0.1	0.1	0.1	0.1	0	0.2	0.2	0.1
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Low	Low	Very Low
Glebe Close; Halstead Road (south); Halstead Road (north)	Stn 10	Average value	0.1	0	0	0.1	0.1	0.1	0.1	0.1
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Loughborough Road; River Soar (marina / caravan park)	Stn 11	Average value	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Meadow Farm Marina and Caravan Park	Stn 12	Average value	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
Quorn House Park	Stn 13	Average value	0.1	0	0.1	0.1	0	0.1	0.1	0.1
		Magnitude ^b	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low

^a Trigger mass deposition and Effective Area Coverage rates as in Section 7.3, ZLFMS-AG008 Dust Management and Monitoring Plan (Updated), 2015

^b Magnitude of directional dust soiling derived from Beaman and Kingsbury, 1981

^c Direction/s not determined for daily EAC below 0.1%/day (very low soiling)

4 Complaints

During December 2025, it is understood that zero complaints were received by the quarry.

Appendix A: Off-site PM₁₀ monitoring (CBC and AURN)

The daily average PM₁₀ concentrations recorded by the CBC Zephyr are presented below in Figure A.1, alongside similar data from the Defra Automatic Urban and Rural Network (AURN) station in Leicester University².

For the monitoring period 20 November – 17 December 2025, the CBC Zephyr achieved an 89 % data capture rate for PM₁₀ and Leicester AURN station had a data capture of 100%.

For the available data, the average daily PM₁₀ concentration for this monitoring period at the CBC Zephyr (Hawcliffe Road) was 8.7 µg/m³. At the Leicester AURN the average daily PM₁₀ concentration was 8.4 µg/m³ for the monitoring period.

During this monitoring period, the average daily PM₁₀ concentrations recorded from the onsite monitors were slightly higher than the CBC Zephyr and Leicester AURN at Hawcliffe Road with 12.0 µg/m³, but lower at Quorn House with 7.7 µg/m³.

Between 20 November – 17 December 2025 there were no recorded instances where the daily average PM₁₀ concentrations exceeded 50 µg/m³ at the CBC Zephyr or at the Leicester AURN.

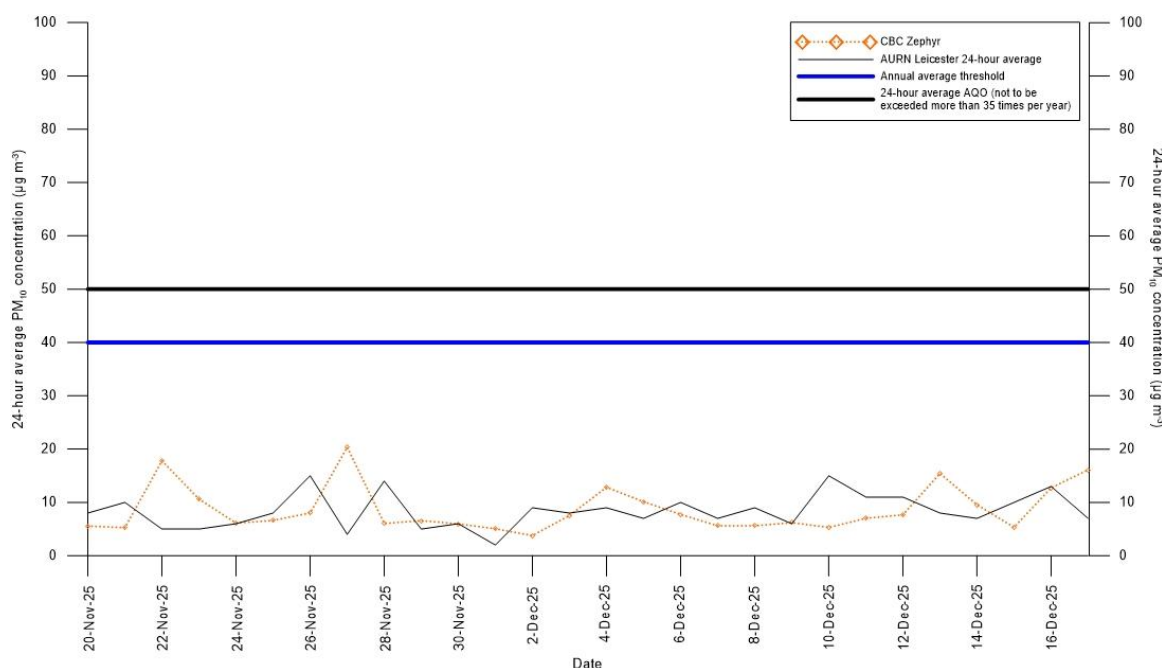


Figure A.1: Daily average PM₁₀ concentration, CBC Zephyr and Leicester AURN, 20 November – 17 December 2025

² <http://uk-air.defra.gov.uk/networks/network-info?view=aurun>

Appendix B: Off-site PM_{2.5} monitoring (CBC and AURN)

The daily average PM_{2.5} concentrations recorded by the CBC Zephyr are presented below in Figure B.1, alongside similar data from the Defra Automatic Urban and Rural Network (AURN) station in Leicester University.

For the monitoring period 20 November – 17 December 2025, there was an 89 % data capture recorded from the CBC Zephyr and 100 % data capture rate from the Leicester AURN station. For the available data the average daily PM_{2.5} concentration for this monitoring period at the CBC Zephyr was 4.9 µg/m³. At the Leicester AURN the average daily PM_{2.5} concentration was 5.3 µg/m³ for the monitoring period.

Onsite PM_{2.5} concentrations were higher at Hawcliffe Road (7.7 µg/m³) and at Quorn House (6.4 µg/m³) compared to off-site averages of 4.9 µg/m³ at CBC Zephyr and 5.3 µg/m³ at Leicester AURN, likely reflecting the differences in locations.

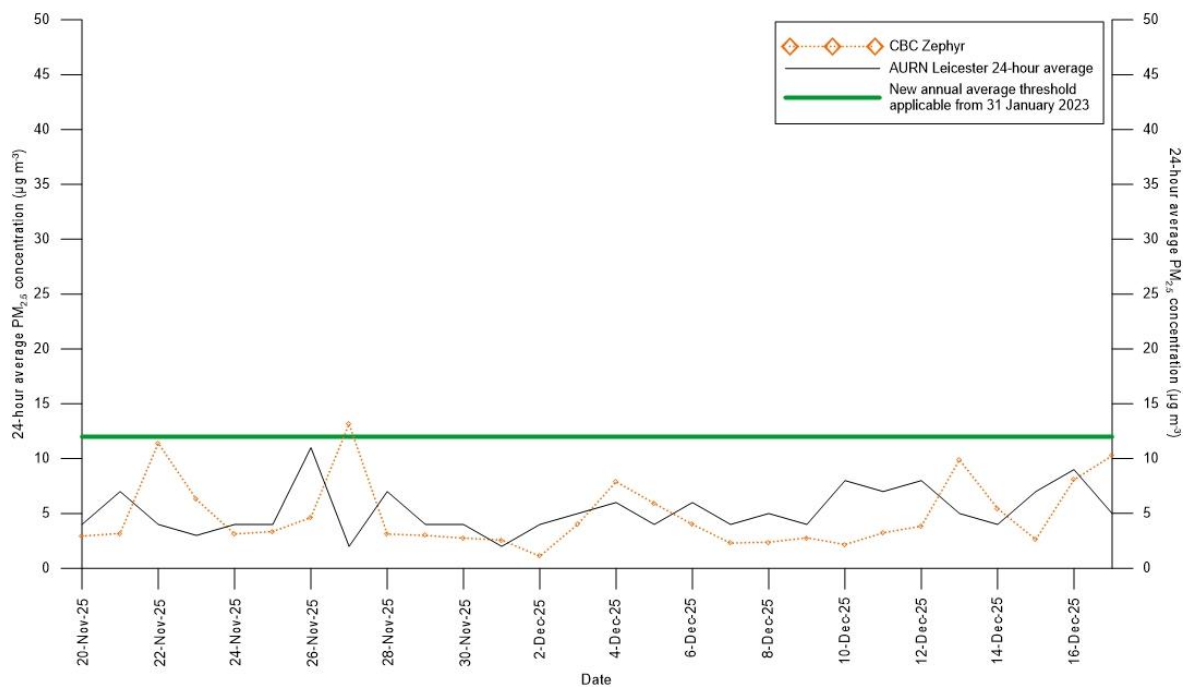


Figure B.1: Daily average PM_{2.5} concentrations, CBC Zephyr and Leicester AURN 20 November – 17 December 2025

Appendix C: Off-site PM₁₀ and PM_{2.5} Annual Summary

Table C.1: Average PM₁₀ concentrations at CBC Zephyr and Leicester AURN for 12 months up to 17 December 2025.

	AURN Leicester University	CBC Zephyr
Valid data capture	100 %	89 %
Period average PM ₁₀ concentration	12.3 µg/m ³	13.1 µg/m ³
Percentage of annual AQO (40 µg/m ³)	30.7 %	32.7 %
No. exceedances of daily AQO (50 µg/m ³ , not to be exceeded more than 35 times per calendar year)	1	3

Table C.2: Average PM_{2.5} concentrations at CBC Zephyr and Leicester AURN for 12 months up to 17 December 2025.

	AURN Leicester University	CBC Zephyr
Valid data capture	100 %	89 %
Period average PM _{2.5} concentration	7.8 µg/m ³	8.6 µg/m ³
Percentage of interim target (12 µg/m ³ as an annual average)	65 %	72 %