HS2

June 2023

Air Quality and Dust Monitoring Monthly Report – June 2023

London Borough of Ealing

Department for Transport

High Speed Two (HS2) Limited has been tasked by the Department for Transport (DfT) with managing the delivery of a new national high speed rail network. It is a non-departmental public body wholly owned by the DfT.

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A report prepared by EWCs and MWCCs on behalf of HS2 Ltd.

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Monthly Summary

1.1.1 This Summary Report is published in fulfilment of commitments detailed in the High Speed Rail (London-West Midlands) Environmental Minimum Requirements, Annex 1: Code of Construction Practice, for the nominated undertaker to present the results of air quality and dust monitoring undertaken in the London Borough of Ealing (LBE) during May 2023 and June 2023 respectively.

1.1.2 Figure 1 to Figure 3 in Appendix A indicate the current worksites together with air quality and dust monitoring locations.

1.1.3 This summary should be read in conjunction with the overview monitoring report available from www.gov.uk/government/collections/monitoring-the-environmental-effects-of-hs2, which highlights: the applicable standards and guidance, as well as the air quality and dust monitoring methodologies to be implemented by nominated undertakers throughout construction.

1.1.4 The current phase of construction works commenced in October 2019 and is expected to be completed by 2025. The current worksites, as presented in Appendix A, Figure 1to Figure 3, include:

Old Oak Common Depot (located in the London Borough of Hammersmith and Fulham)

- Mobilisation; and
- New site set up for the station works.

Victoria Road Crossover Box and Flat Iron Site

- Groundworks;
- Piling operations shaft construction; and
- Conveyor construction.

Willesden Euro Terminal

- Excavated material spoil management; and
- Conveyor construction.

Atlas Road–piling operations

- Groundworks;
- Conveyor construction; and
- Tunnel entrance construction.

Green Park Way Vent Shaft

- Groundworks;
- Piling operations;
- Vent shaft construction; and

- Materials management.

Mandeville Road Vent Shaft

- Groundworks;
- Piling operations; and
- Materials management.

Westgate Vent Shaft

- Groundworks;
- Piling operations;
- Vent shaft construction; and
- Materials management.

1.1.5 Seventeen (17) dust monitors are installed around worksites, where works are underway. These sites returned a medium dust risk rating.

1.1.6 Dust monitoring locations and results are presented in Appendix B, Table 1, together with line charts of monthly data from each dust monitor, Figure 4. All continuous dust monitoring is undertaken using indicative monitors. Despite being Environment Agency (MCERTS) certified, indicative monitors carry a higher level of uncertainty than reference monitors, and therefore cannot be strictly compared with Air Quality Standards for human health and the environment. The purpose of the monitoring undertaken is to ensure the effectiveness of the on-site mitigation.

1.1.7 The trigger level for PM_{10} concentrations of 190 µg/m^3, over a 1-hour period, in accordance with the updated guidance document '*Guidance on Monitoring in the Vicinity of Demolition and Construction Sites – (October 2018)*' has been applied.

1.1.8 Dust trigger alerts were recorded during the monitoring period (June 2023) and are reported in Appendix B, Table 2.

1.1.9 Data capture was below 90% for multiple monitors in June 2023 due to temporary power supply issues.

1.1.10 Diffusion tube monitoring of Nitrogen Dioxide (NO_2) is undertaken at six (6) locations around highways within the LBE as part of the management of air quality where significant effects occur as a result of the scheme.

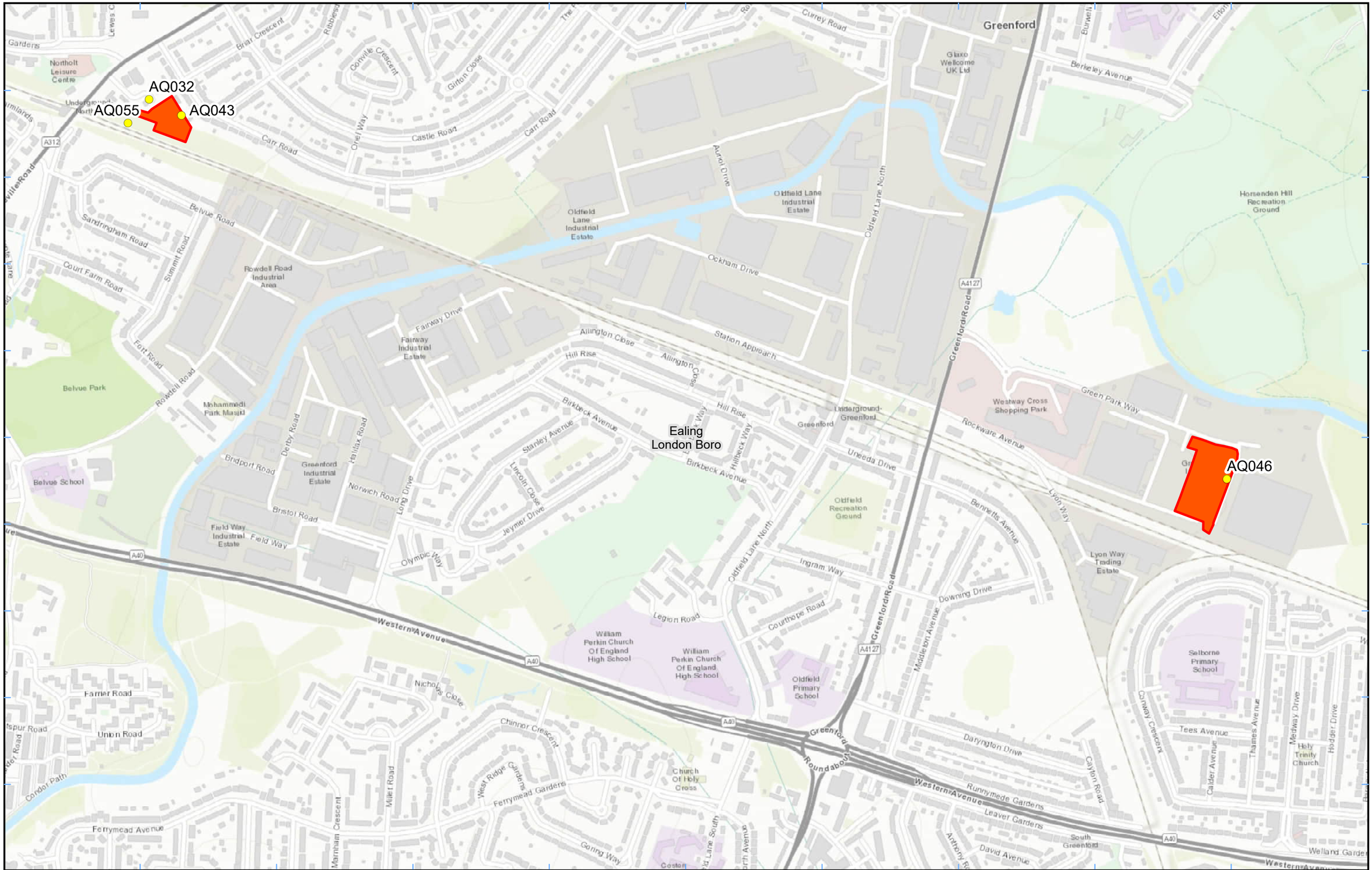
1.1.11 Diffusion tube monitoring results are as provided from the laboratory analysis, and therefore still require various analysis and adjustments to be undertaken. Final corrected results will be presented and described in the annual report. However, based on the results to date, no unexpected values were recorded during the monitoring period.

1.1.12 NO_2 monitoring locations and results are presented in Appendix C, Table 3, together with the 2023 running mean.

1.1.13 There were no (0) complaints received during this reporting period (June 2023).

Appendix A – Worksites and Monitoring Locations

Figure 1 to Figure 3: Worksites and monitoring locations within the LBE



Legend

- Dust Monitor
- District Borough Unitary Boundaries
- Worksite

Map Number

Map Name

Worksite & Monitoring Locations In LBE (Sheet 1)

London Borough of Ealing

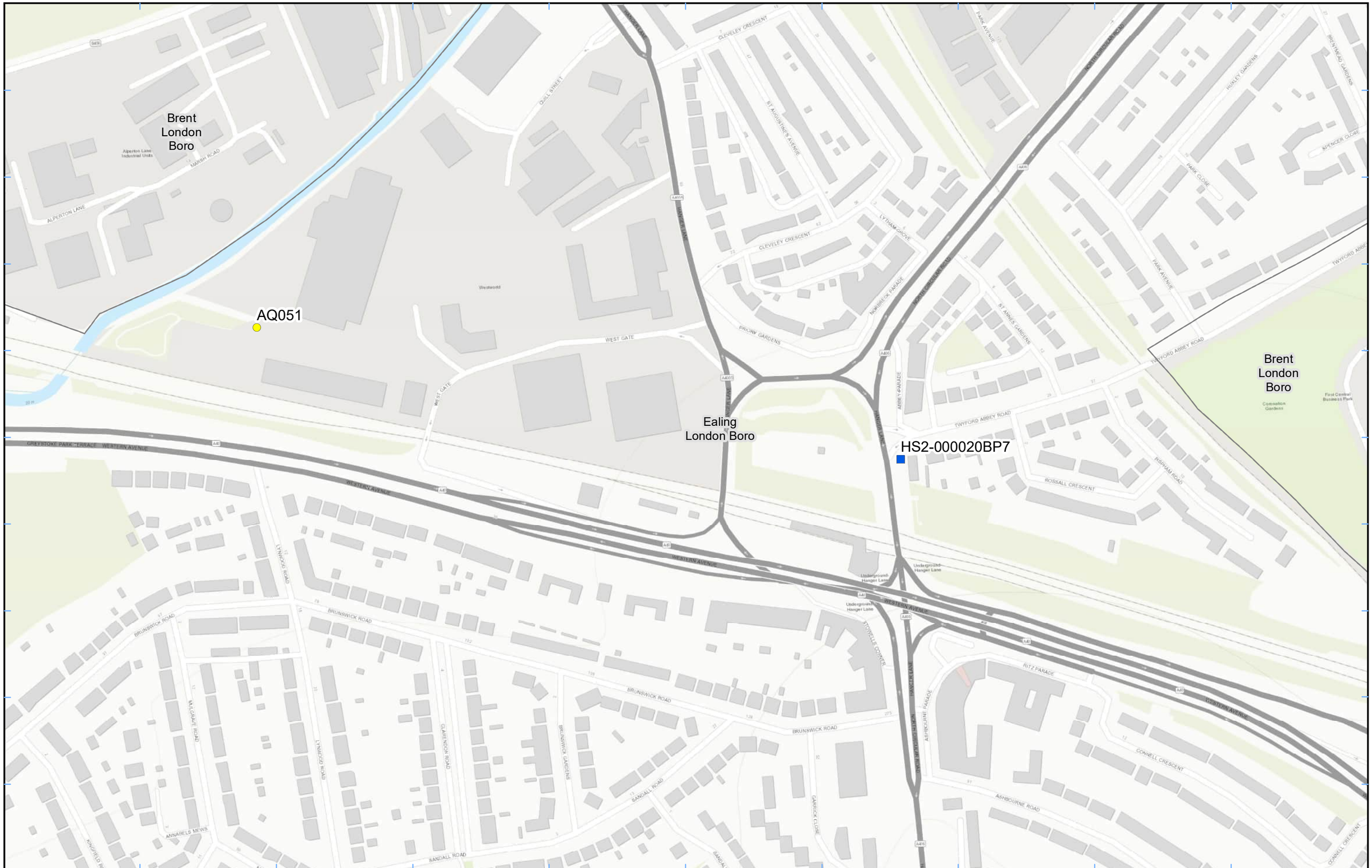
Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:7,000

0 70 140 210 280 Metres

Doc Number:

Date: 18/05/23



Legend

- Diffusion Tube
- District Borough Unitary Boundaries
- Dust Monitor

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Map Number

Map Name

Monitoring Locations
In LBE (Sheet 2)

London Borough of Ealing

Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway,
Birmingham B4 6GA.

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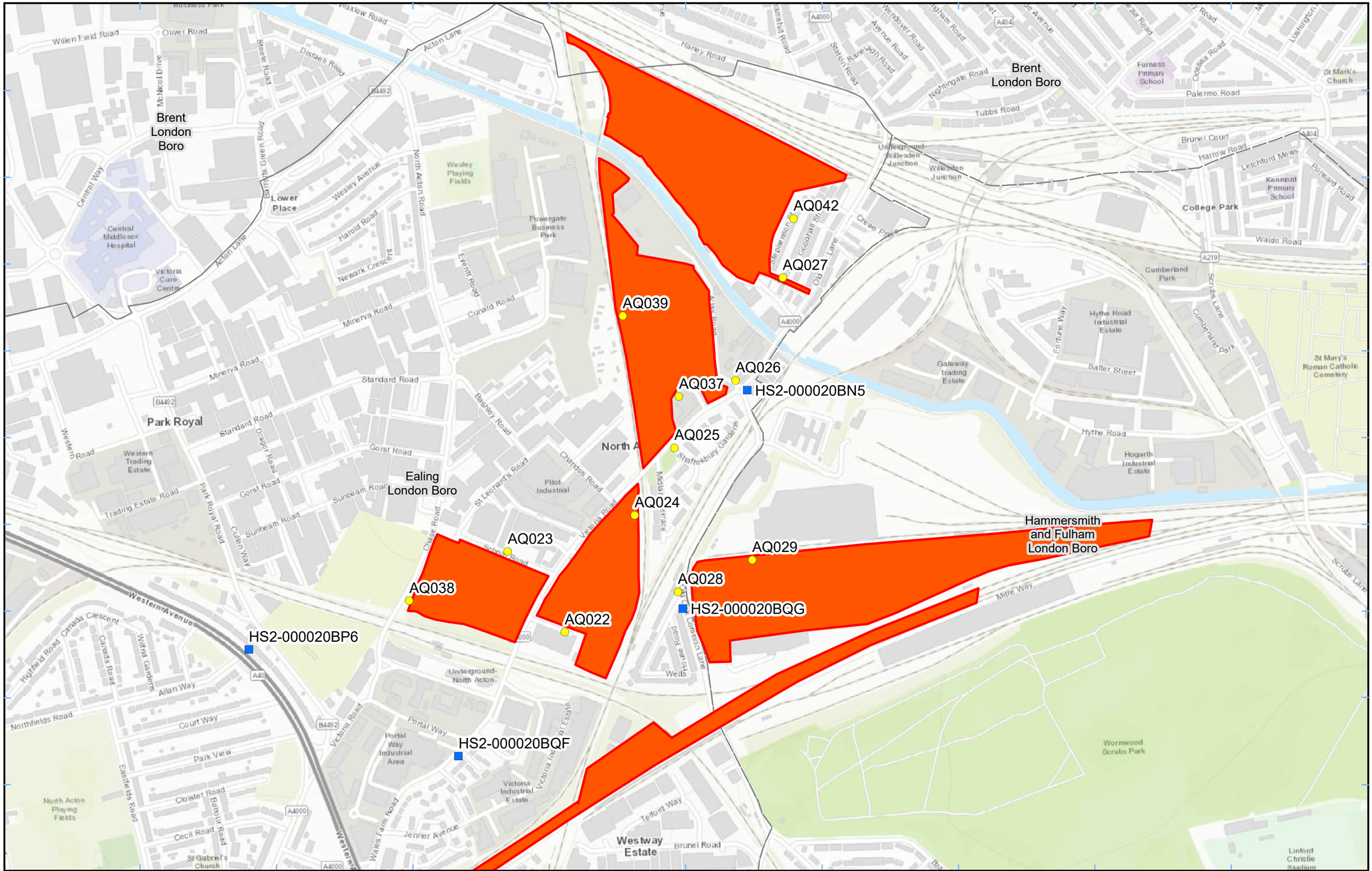
Doc Number:

Date: 26/04/22



Legend

- Diffusion Tube
- Dust Monitor
- Worksite
- District Borough Unitary Boundaries

Map Number

Map Name

Worksite & Monitoring Locations In LBE (Sheet 3)

London Borough of Ealing

Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:7,000

0 70 140 210 280 Metres

Doc Number:

Date: 06/07/23

Appendix B – Dust Monitoring Results

Table 1: Dust monitoring locations and June 2023 results

Monitoring site ID	Coordinates (X,Y)	Location description	Dust risk rating for site	Monitoring site active during period	Change to site since previous period report	Mean 1-hour PM_{10} concentration ($\mu g/m^3$)	Minimum 1-hour PM_{10} concentration ($\mu g/m^3$)	Maximum 1-hour PM_{10} concentration ($\mu g/m^3$)	Number of 1-hour periods exceeding trigger level of 190 $\mu g/m^3$	Data capture (%)
AQ022	521072, 181985	Boden House	M	Yes	N	19.3	3.4	56.9	0	91.5
AQ023	520956, 182149	School Road	M	Yes	N	13.4	2.5	31.2	0	91.2
AQ024	521214, 182223	Braitrim House	M	Yes	N	15.1	2.3	61.6	0	91.7
AQ025	521295, 182360	Victoria Road	M	Yes	N	21.2	3.2	93.2	0	91.2
AQ026	521419, 182497	Old Oak Lane	M	Yes	N	18.6	2.7	144.1	0	91.2
AQ027	521515, 182706	Channel Gate Road	M	Yes	N	14.4	2.4	77.9	0	91.1
AQ028	521302, 182067	Wells House Road	M	Yes	No	20.6	2.3	107.5	0	100.0
AQ029	521453, 182132	Old Oak Common	H	Yes	No	14.6	1.6	63.8	0	90.7
AQ032	513402, 184536	Badminton Close	M	Yes	N	9.3	1.8	36.3	0	94.6
AQ037	521304, 182464	Atlas Road	M	Yes	N	20.2	3.6	122.8	0	91.4
AQ038	520756, 182049	Chase Road	M	Yes	N	27.2	4.3	469.8	4	91.5
AQ039	521190, 182628	Atlas Road 2	M	Yes	N	14.8	2.6	71.7	0	91.4
AQ042	521537, 182826	Stephenson	M	Yes	N	22.5	3.4	214.5	1	90.1

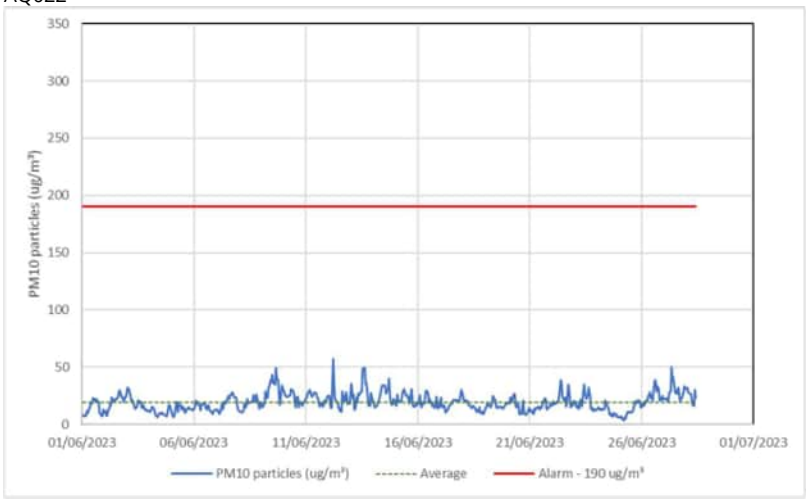
Monitoring site ID	Coordinates (X,Y)	Location description	Dust risk rating for site	Monitoring site active during period	Change to site since previous period report	Mean 1-hour PM_{10} concentration ($\mu g/m^3$)	Minimum 1-hour PM_{10} concentration ($\mu g/m^3$)	Maximum 1-hour PM_{10} concentration ($\mu g/m^3$)	Number of 1-hour periods exceeding trigger level of 190 $\mu g/m^3$	Data capture (%)
		Road								
AQ043	513468, 184504	Mandeville Road	M	Yes	N	12.9	3.1	116.4	0	69.3
AQ046	515593, 183764	Green Park Way	M	Yes	N	17.2	4.0	91.2	0	82.1
AQ051	517976, 182823	Westgate	M	Yes	N	13.6	3.6	63.0	0	98.3
AQ055	513359, 184488	Mandeville Road 2	M	Yes	N	17.5	2.5	251.5	1	98.2

Table 2: Summary of exceedances of trigger level in June 2023

Monitoring site ID	Period exceeding trigger level	Investigation	Outcomes / Resolution / Remedial measures implemented
AQ038	01/06/2023 08:01 – 09:00; 225.6	At the time of the trigger there were no significant or dusty works taking place near the monitoring location. A subsequent error message on the monitored the next day indicated a potential blockage of fault with the monitor. The monitor was kept under review but continued to operate and was left in situ.	The monitor was serviced and calibrated the week following the triggers on 17/06/2023.
	17/06/2023 13:01 – 14:00; 260.5 $\mu g/m^3$ 14:01 – 15:00; 288.9 $\mu g/m^3$ 15:01 – 16:00; 469.8 $\mu g/m^3$	Triggers occurred when the site was closed, albeit maintenance was being carried out underground in the ancillary shaft. It was considered this was unlikely to have caused the triggers which were probably due to a temporary power loss. The monitor would've operated on its internal battery with the pump and internal heater potentially causing elevated levels due to working a lower power.	
AQ042	12/06/2023 01:01 – 02:00; 214.47 $\mu g/m^3$	The trigger was received during the early hours of Monday night when the site was closed. It is considered the trigger was associated with high humidity levels following heavy rain earlier on Sunday evening causing a false elevated reading.	n/a
AQ055	17/06/2023 23:01 - 00:00; 251.5 $\mu g/m^3$	The trigger was received at midnight on the Friday when the site was shut and is considered to have been caused by a temporary power loss.	n/a

Figure 4: Construction dust 1-hour mean indicative PM_{10} concentration for dust monitors

AQ022



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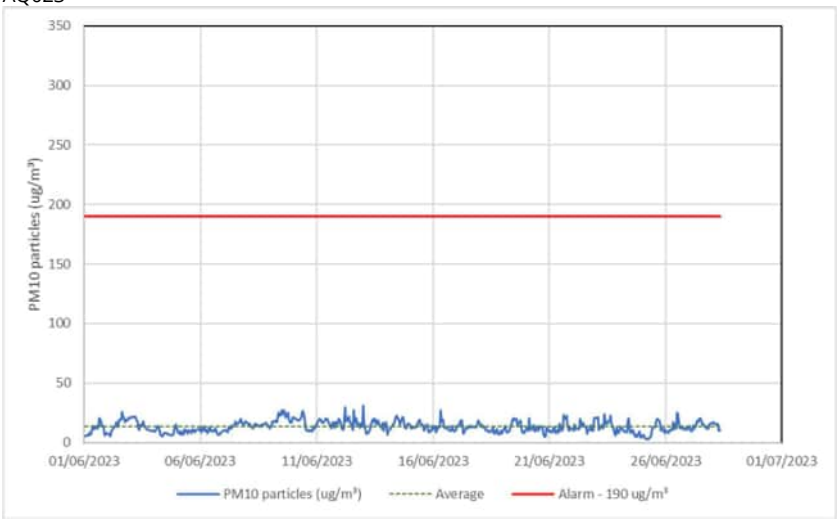

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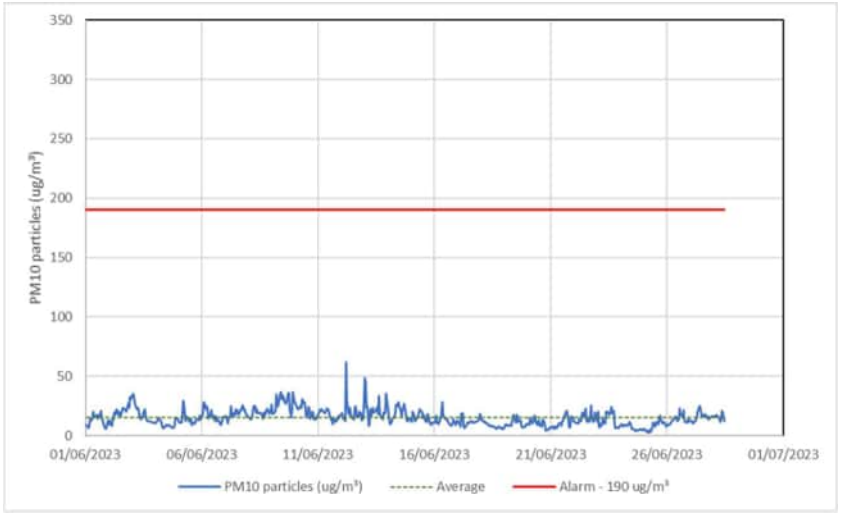

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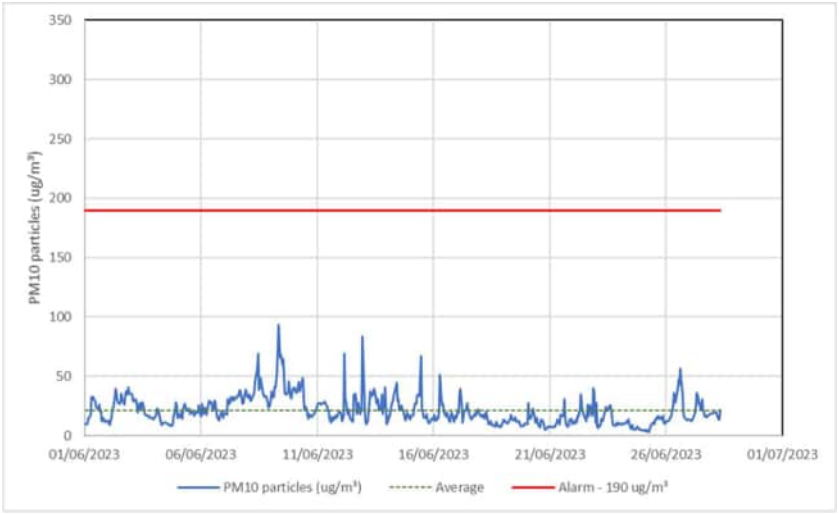

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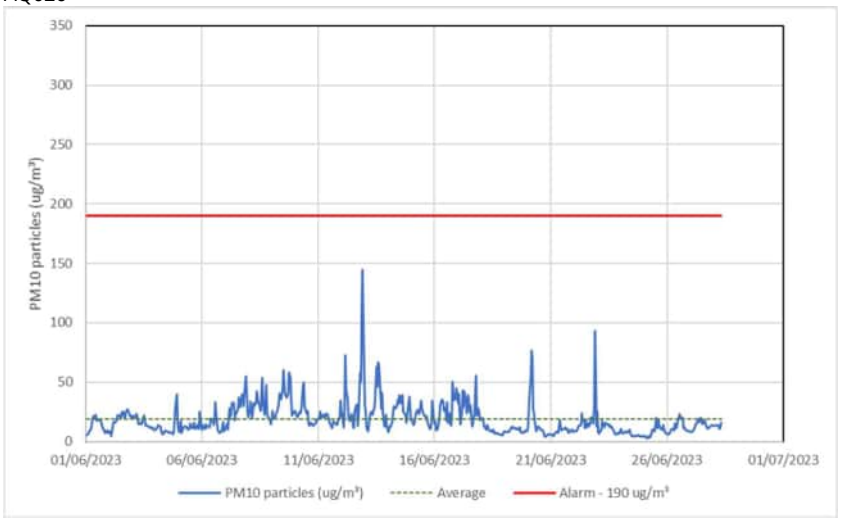

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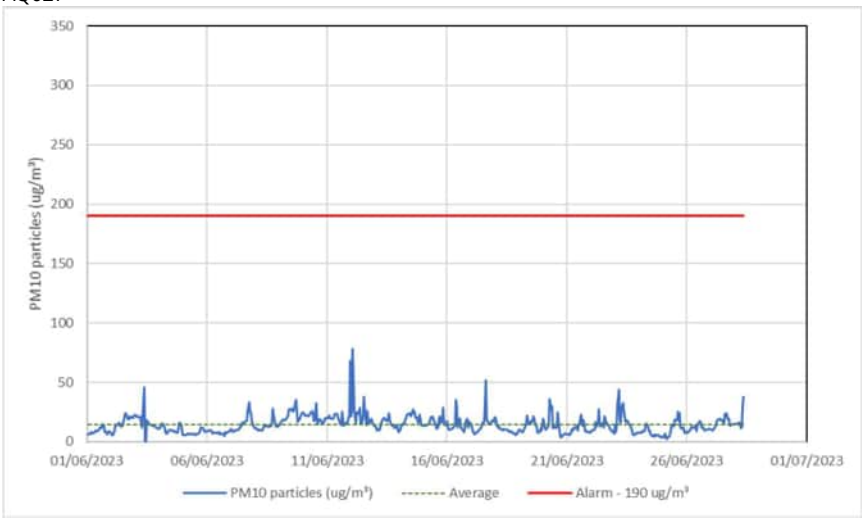

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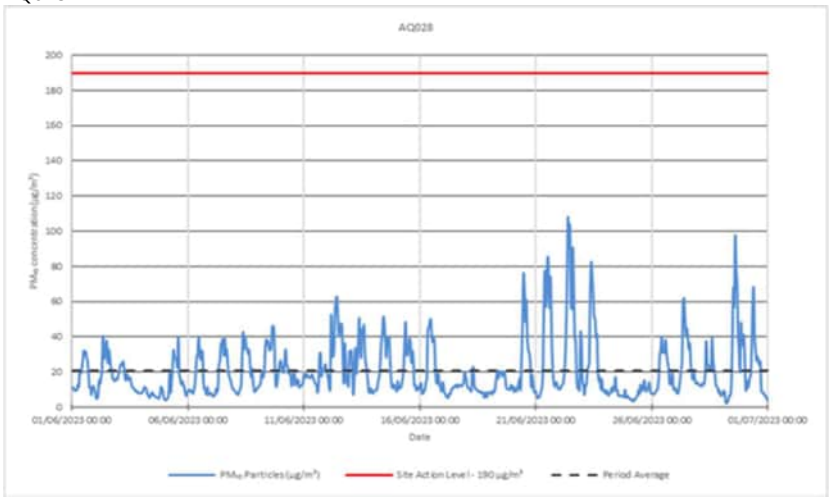

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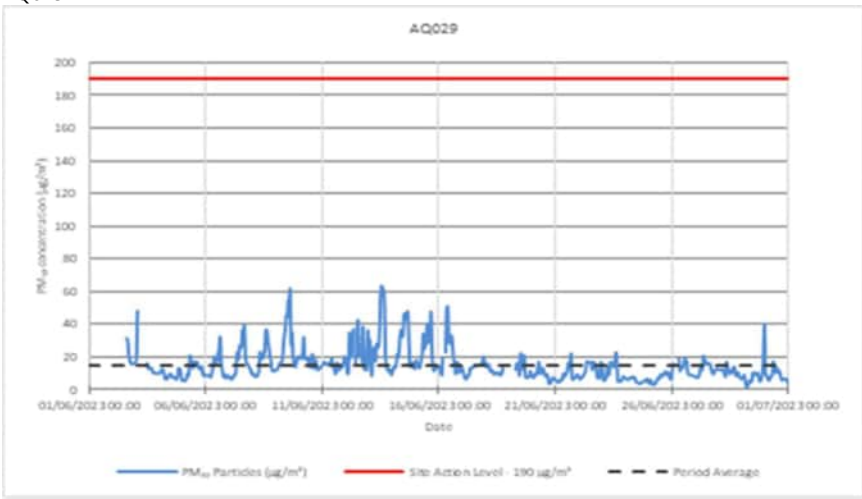

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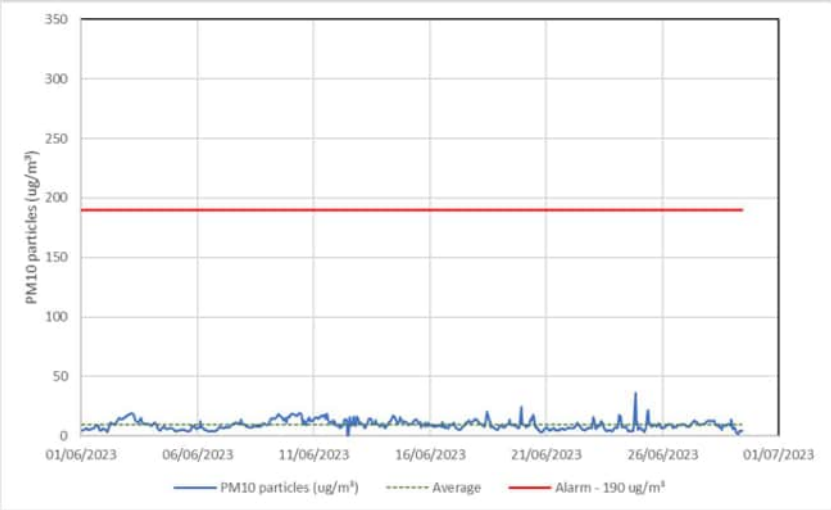

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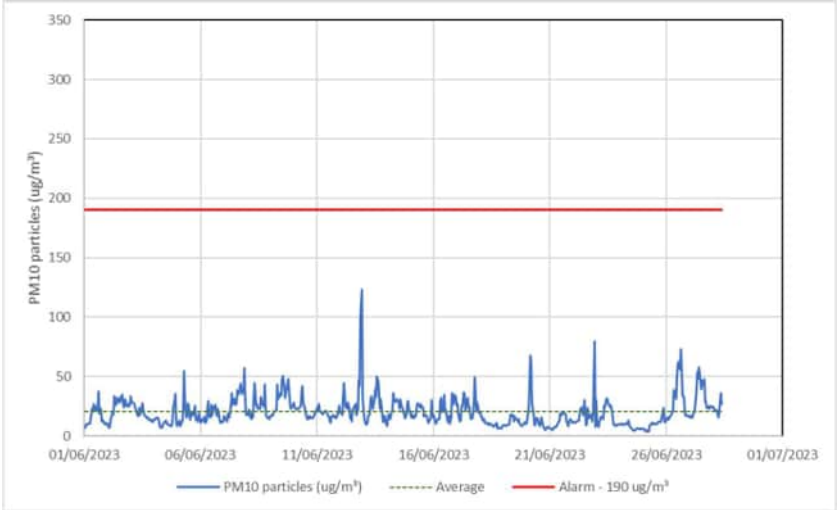

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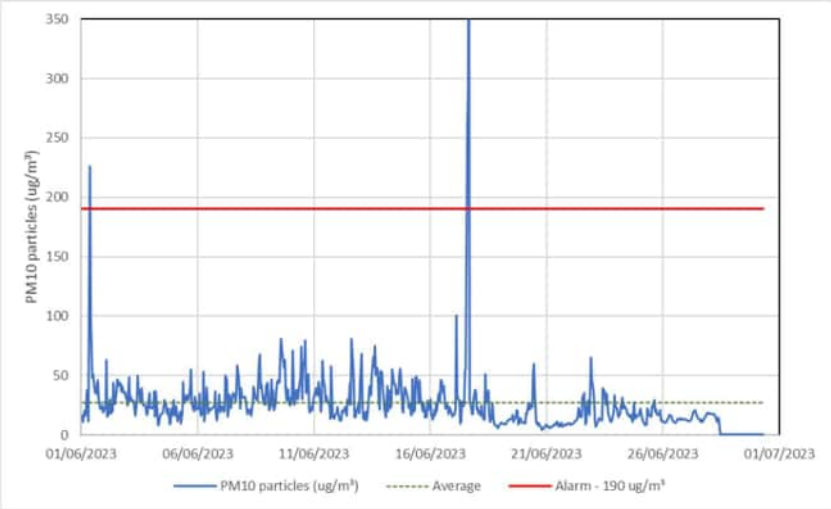

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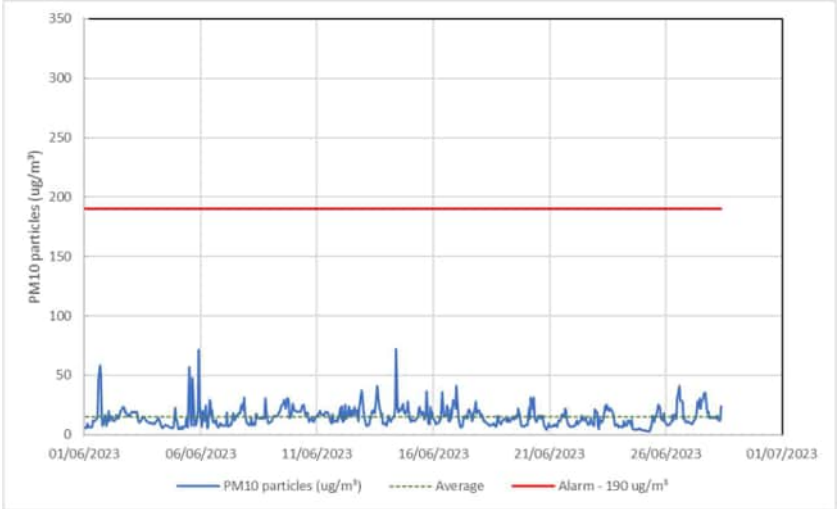

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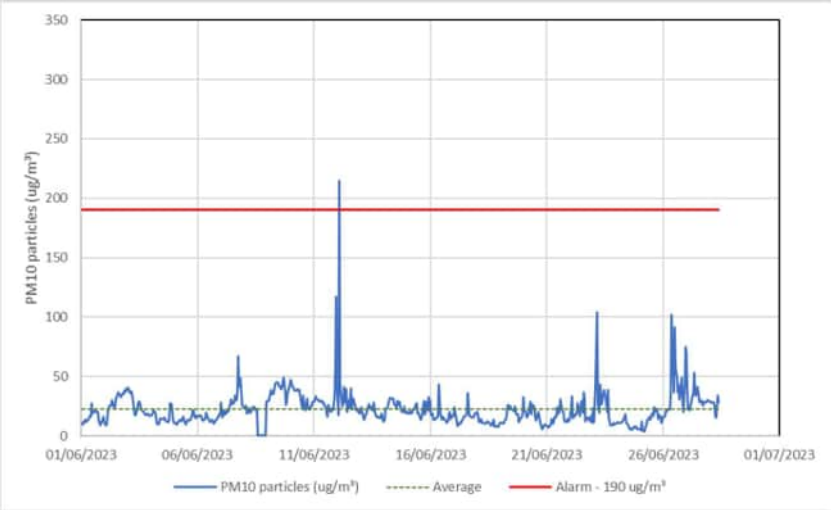

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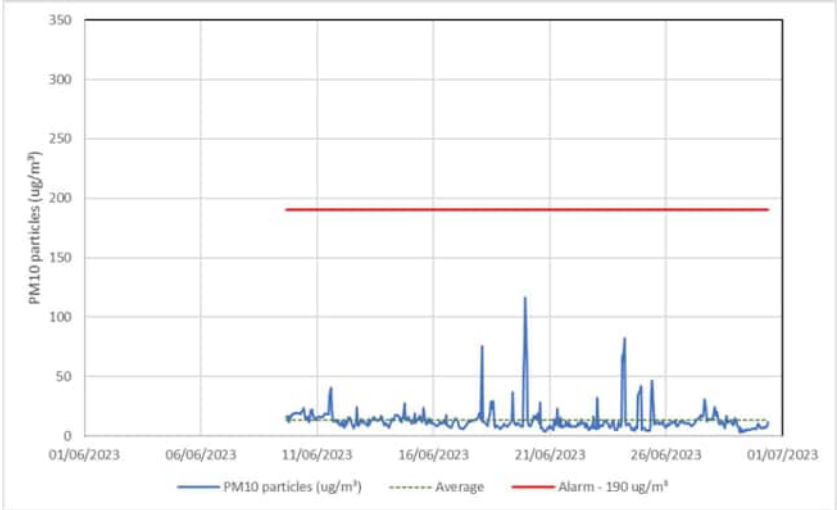

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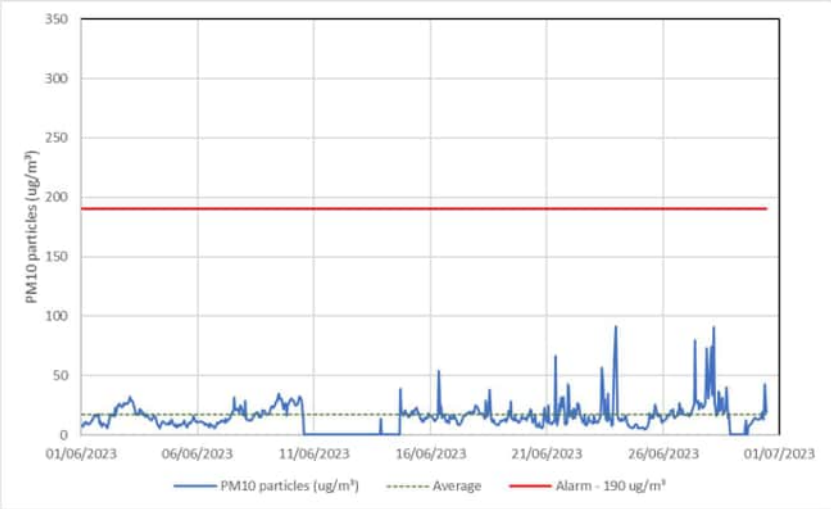

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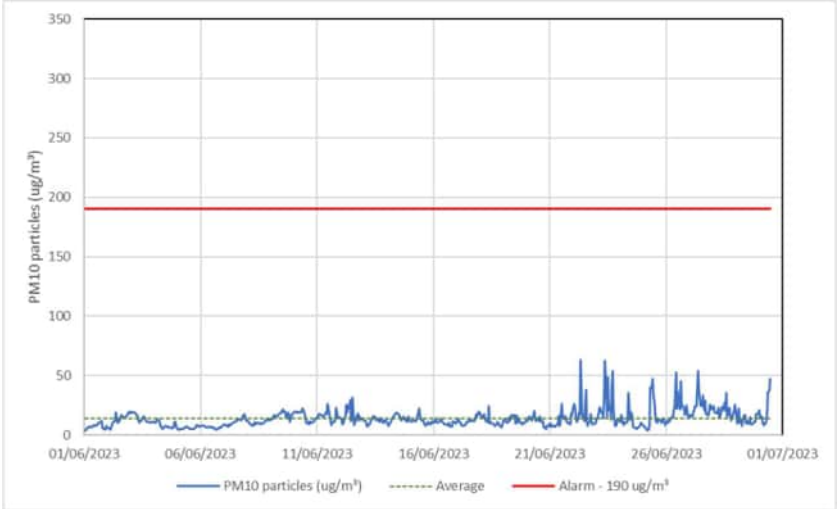

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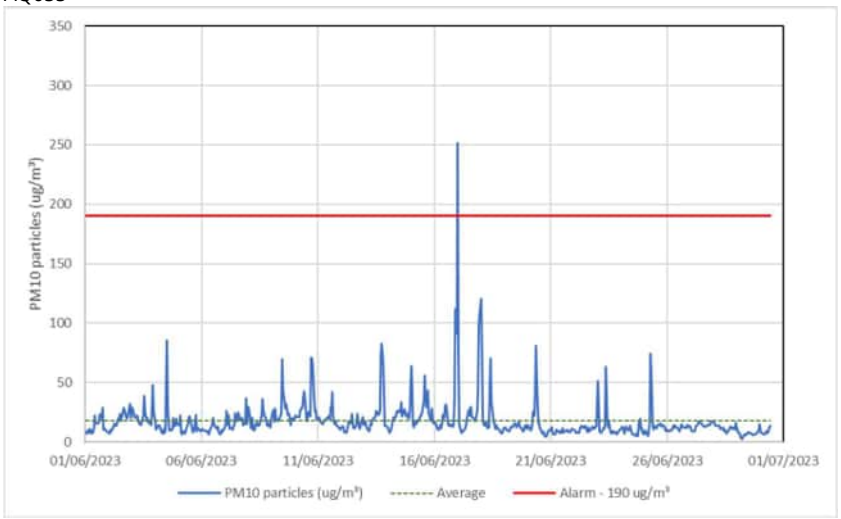
350
300
250
200
150
100
50
0
PM10 particles (ug/m³)
01/06/2023
06/06/2023
11/06/2023
16/06/2023
21/06/2023
26/06/2023
01/07/2023
PM10 particles (ug/m³)
Average
Alarm - 190 ug/m³

Appendix C – Air Quality Monitoring Results

Table 3: NO_2 monitoring locations around highways, NO_2 concentrations and monthly monitoring results with running mean for 2023 (µg/m^3)

Monitoring Site ID	Location description	Coordinates (X, Y)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean [1]
HS2-000020BN5	Sign post on Victoria Road	521443, 182477	57	60	37	Tube Missing	42								49
HS2-000020BN7	The Approach street sign	520959, 181102	50	48	29	37	27								38
HS2-000020BQF	Conway Drive sign post	520856, 181733	58	57	44	46	42								49
HS2-000020BQG	Lamp post outside No 1. Wells House Road on Old Oak Common Lane	521312, 182033	53	48	37	42	31								42
HS2-000020BP6	Triplicate site next to the Ealing, Western Avenue Acton roadside automatic monitoring station	520430, 181950	44	49	37	38	33								40
HS2-000020BP7	Triplicate site next to the Ealing, Hangar Lane Gyratory roadside automatic monitoring station	518537, 182708	71	63	57	48	42								56

[1] Note: to aid interpretation and conform with best practice, the monthly measurements in this table are reported rounded to the nearest whole number. The annual mean presented here is calculated based on laboratory data to 4 significant figures, rounded to a whole number, and therefore may differ slightly to a mean derived from averaging the rounded monthly measurements in the table.