HS2

September 2021

Air Quality and Dust Monitoring Monthly Report – September 2021

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 August and September 2021 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, Figures 1 to 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 contractors;
- Victoria Road Crossover Box and Flat Iron Site –groundworks and piling operations;
- Willesden Euro Terminal –excavated material spoil management
- Atlas Road–piling operations and groundworks;
- Green Park Way Vent Shaft –site set up and groundworks and piling operations
- Mandeville Road Vent Shaft – site set up and groundworks and piling operations.
- Westgate Vent Shaft – site set up and groundworks and piling operations.

1.1.5 Fourteen (14) 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 2, together with line charts of monthly data from each dust monitor, in 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 There were dust trigger alerts recorded during the monitoring period (September 2021). Triggers are presented in Appendix B, Table 3. All other results were in line with expected ranges.

1.1.9 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 may occur as a result of the scheme.

1.1.10 Diffusion tube monitoring results are 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.

1.1.11 NO_2 monitoring locations and results are presented in Appendix C, Table 4, together with the 2021 running mean.

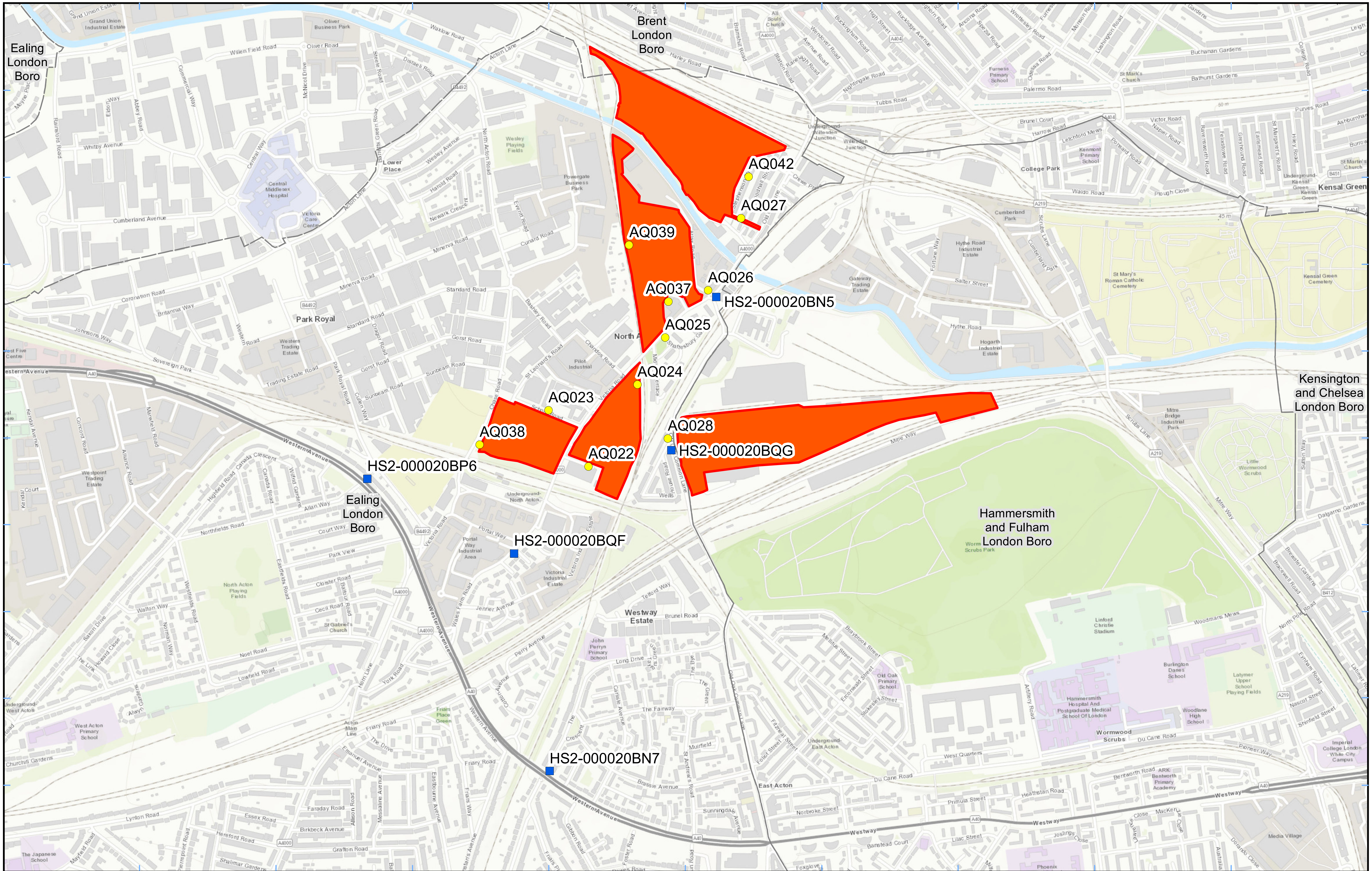
1.1.12 Table 1 provides a summary of the complaint information related to dust or air quality received during the reporting period, together with the findings of any related investigations.

Table 1: Summary of complaints received during July 2021

Complaint Reference No.	Worksite Reference	Description of complaint	Results of investigation
HS2-21-42607-C	N/A	Rise in air pollution levels. Black sticky dust in the air filters provided by HS2.	Air quality continues to be closely monitored, and mitigations in line with the Code of Construction Practice (CoCP) and Air Quality Action Plan implemented to reduce impacts of our works on the local air quality.

Appendix A – Worksites and Monitoring Locations

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



Legend

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

Map Number

Map Name

Worksite and 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: 1:10,000

0 100 200 300 400
Metres

Doc Number:

Date: 27/01/21

Legend

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

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

Worksite and Monitoring Locations In LBE (Sheet 2)

London Borough of Ealing

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

Scale at A3: 1:10,000

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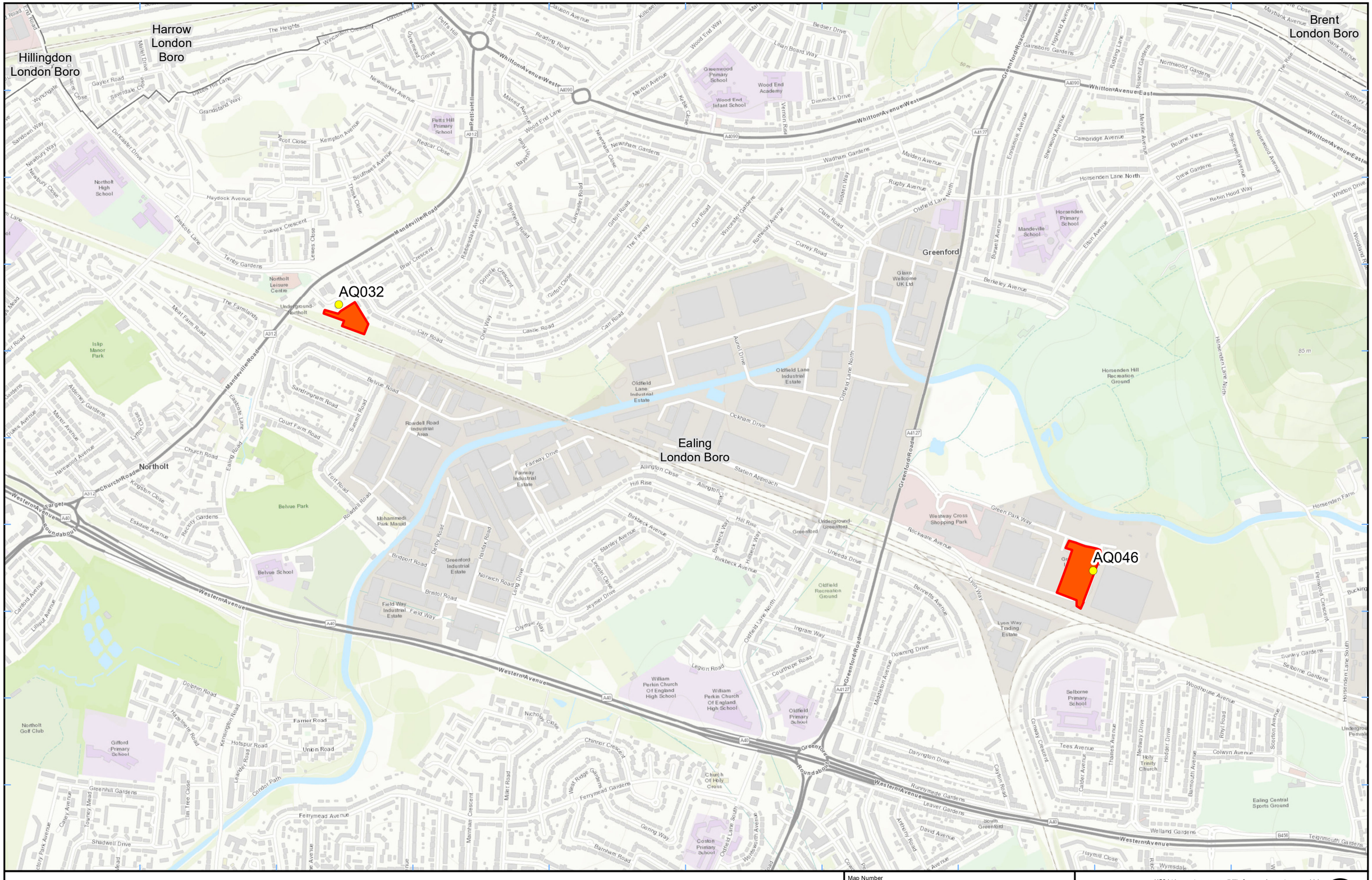
Doc Number:

Date: 26/07/21



Legend

Dust Monitor
District Borough Unitary Boundaries
Worksite

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

Worksite and 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: 1:10,000

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Metres

Doc Number:

Date: 07/05/21

Appendix B – Dust Monitoring Results

Table 2: Dust monitoring locations and September 2021 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	14.6	2.7	62.5	0	100.0
AQ023	520956, 182149	School Road	M	Yes	N	11.9	2.1	36.1	0	100.0
AQ024	521214, 182223	Braitrim House	M	Yes	N	17.2	3.3	318.4	1	100.0
AQ025	521295, 182360	Victoria Road	M	Yes	N	21.7	3.7	129.6	0	100.0
AQ026	521419, 182497	Old Oak Lane	M	Yes	N	26.1	3.3	120.1	0	100.0
AQ027	521515, 182706	Channel Gate Road	M	Yes	N	18.5	2.4	309.8	3	99.9
AQ028	521302, 182067	Wells House Road	H	Yes	N	31.4	2.8	201.5	2	96.8
AQ032	513402, 184536	Badminton Close	M	Yes	N	8.3	0.8	32.8	0	100.0
AQ037	521304, 182464	Atlas Road	M	No	N	13.3	2.0	81.9	0	99.9
AQ038	520756, 182049	Chase Road	M	Yes	N	15.1	2.3	192.4	1	100.0
AQ039	532417, 181198	Atlas Road 2	M	Yes	N	15.8	2.5	386.4	2	100.0
AQ042	521537, 182826	Stephenson Road	M	Yes	N	14.4	3.2	265.9	1	96.0

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 (%)
AQ046	515593, 183764	Green Park Way	M	Yes	N	11.5	2.5	37.9	0	100.0
AQ051	517951 , 182788	Westgate	M	Yes	N	16.3	2.5	237.5	1	95.7

Table 3: Summary of exceedances of trigger level in September 2021

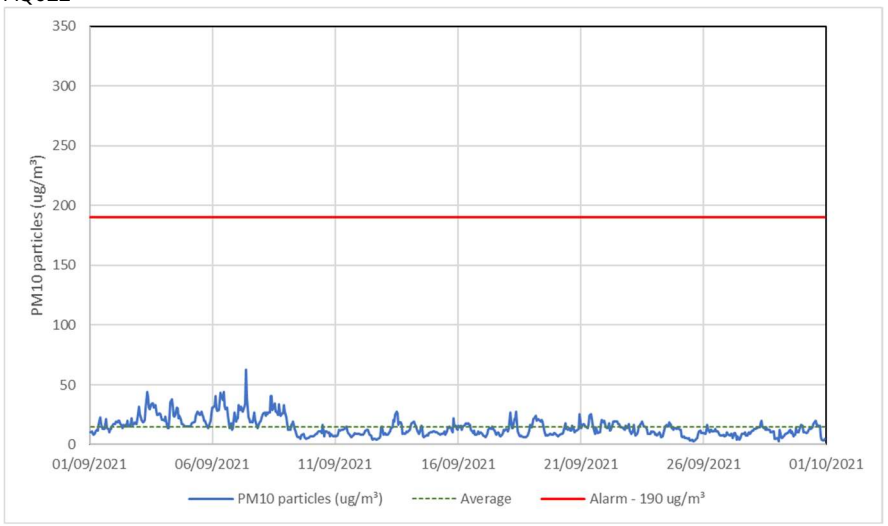
Monitoring site ID	Period exceeding trigger level	Investigation	Outcomes / Resolution / Remedial measures implemented
AQ024	07/09/2021 12:01-13:00; 318.4 $\mu g/m^3$	At the time of the trigger alert from the dust monitor (AQ024) which is located on the north-eastern boundary of the Victoria Road Flat Iron Compound, there were no activities taking place in the area which could've given rise to the increased dust levels. There was, however, a coal powered steam train parked for a period of time towards the end of the hour directly adjacent to the monitor emitting significant clouds of black smoke.	n/a
AQ027	06/09/2021 21:01-22:00; 260.5 $\mu g/m^3$ 22:01-23:00; 309.8 $\mu g/m^3$ 07/09/2021 23:01-00:00; 281.8 $\mu g/m^3$	At the time of the triggers there were no works or vehicle movements associated with the HS2 site as the site was shut during the night. It is considered the triggers was due moisture in the inlet during the late night and early hours of the morning giving false readings. AQ042 nearby monitor experienced a similar spike on the night of the 06/09/2021	n/a
AQ028	15/09/2021 13:00 BST (12:00 GMT) – 201.5 $\mu g/m^3$ 14:00 BST (13:00 GMT) – 197.2 $\mu g/m^3$	Local works (Not Old Oak Common related) were on-going away from site with use of temporary traffic lights. These caused traffic congestion at Victoria road roundabout which caused traffic to backup to Old Oak Common Lane where the monitor was located. Deliveries entering and leaving site via Old Oak Common Lane. The closest work area to the monitor was the east box, with platform installation, and the west box, with D-wall installation. Ecological Supervision of works in area AD7.1. Vegetation maintenance in area AD1AA (strimming to ground level).	The vehicle traffic caused by external works is the main source of dust exceedances. Using road sweeper on site haul roads and Old Oak Common Lane. Using water bowser on site roads. All vehicles use wheel wash when leaving site. We are sending a sweeper on to Old Oak Common lane.

Monitoring site ID	Period exceeding trigger level	Investigation	Outcomes / Resolution / Remedial measures implemented
			Visual observations were being undertaken and as a result of the weather conditions experienced earlier in the week, the area was still wet. Concrete supplied from on-site plant to reduce lorries on Old Oak Common Lane. It is considered that these works would produce negligible amounts of dust, if any. Therefore, no actions are required.
AQ038	01/09/2021 17:01-18:00; 192.4 µg/m^3	At the time of the two trigger alerts from the dust monitor (AQ038) which is located on the western boundary of the Victoria Road Crossover Box site adjacent to Chase Road, there were no activities taking place in the area which could've given rise to the increased dust levels. Excavation work and spraying of the nearby shaft is now complete and decommissioning of plant and equipment is under way in the area. The locality and much of that area of the site is concrete hardstanding and damped down as part of daily circuits of the site by road sweepers, bowsers, dust canons, and jet sprays, so windblown dust from the wider site was not considered to be the source either. Utilities works on Chase Road were also considered but were ruled out given the nature (not dusty) and proximity of the work.	The site team will maintain good housekeeping standards across the site and continue to ensure dust suppression is available and deployed where required. The monitor is due a service and maintenance during the week commencing 27th September.
AQ039	03/09/2021 12:01-13:00; 249.7 µg/m^3 13:01-14:00; 386.4 µg/m^3	At the time of the trigger alert from the dust monitor (AQ039), which is located on the western boundary of the Atlas Road site with the railway, two large footings for the future conveyor belt were being excavated in close proximity and either side of the monitoring location. The activity had been undertaken throughout the morning and with dust suppression. It is considered that the elevated dust levels were due to the ground drying out during the excavation activities but were not experienced beyond the immediate area. The other nearby dust monitor, AQ037, which is on the south-eastern site boundary showed no elevated levels.	Dust suppression using dust canons was redeployed to the location and subsequent monitored levels dropped. The site team will ensure dust suppression is available and deployed where required on site.
AQ042	06/09/2021 22:01-23:00; 265.9 µg/m^3	At the time of the triggers there were no works or vehicle movements associated with the HS2 site as the site was shut during the night.	n/a

Monitoring site ID	Period exceeding trigger level	Investigation	Outcomes / Resolution / Remedial measures implemented
		It is considered the triggers was due to moisture in the inlet during the late-night hours giving a false reading. AQ027 nearby monitor experienced similar spikes on the 06/09/2021 and 07/09/2021	
AQ051	19/09/2021 02:01 03:00; 237.5 µg/m^3	The trigger was due to a power loss to the monitor for a number of hours during which monitor continued sampling (powered by the internal battery) without external power to the internal heated inlet and potentially the pump running down, leading to false elevated readings.	n/a

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

AQ022



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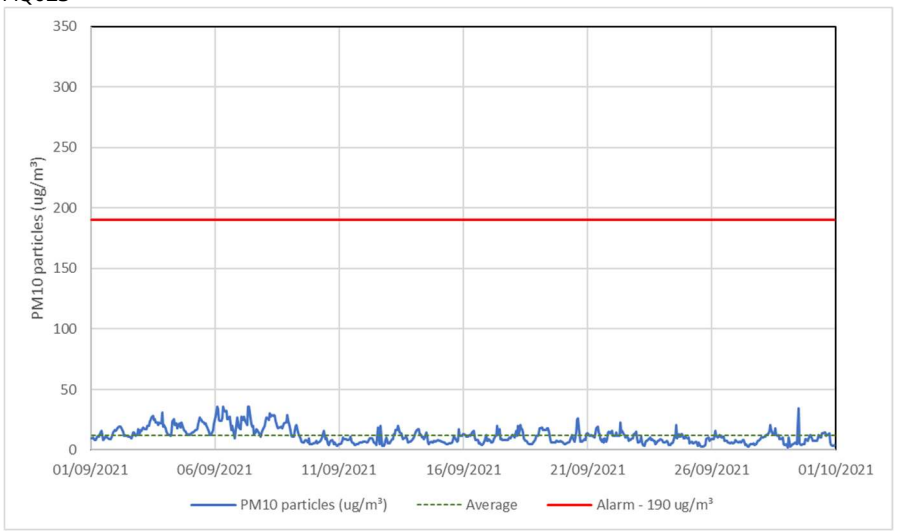
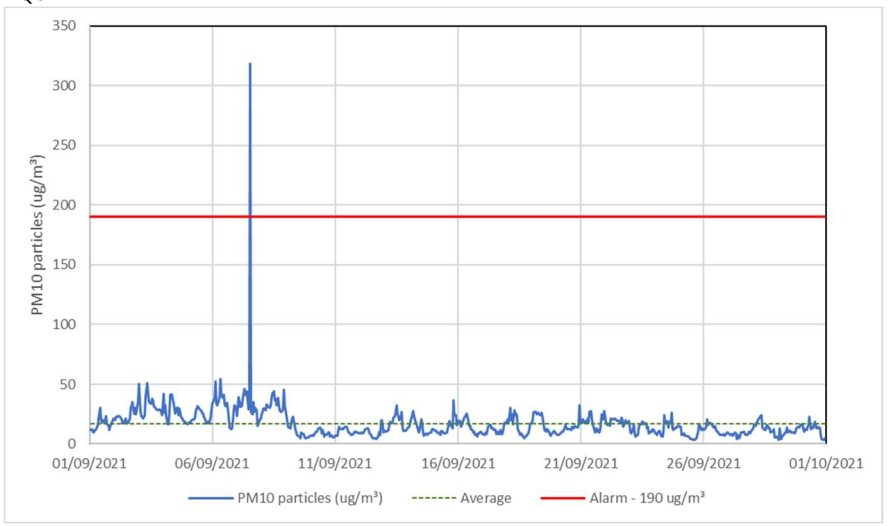
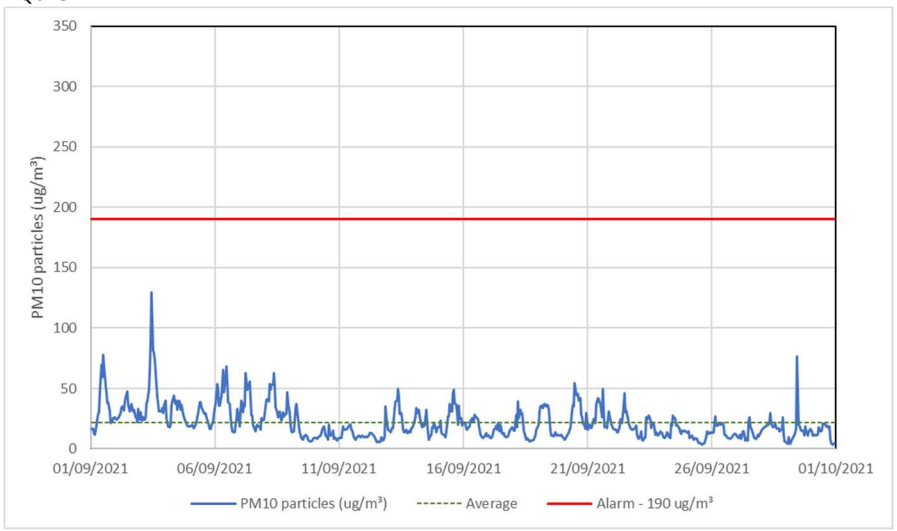


AQ024



AQ025



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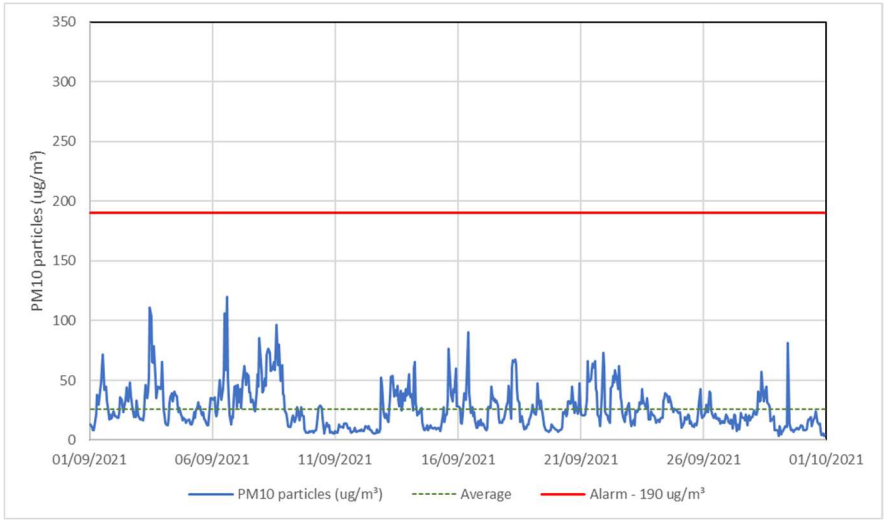
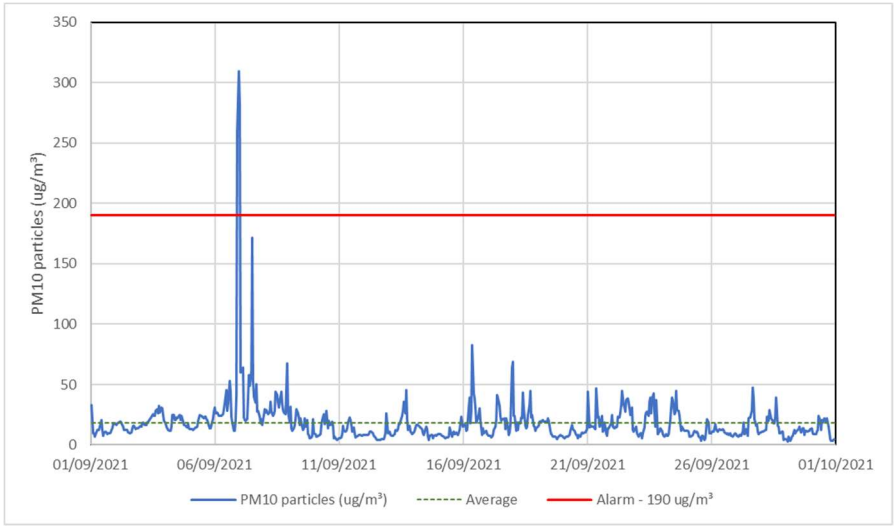


AQ027



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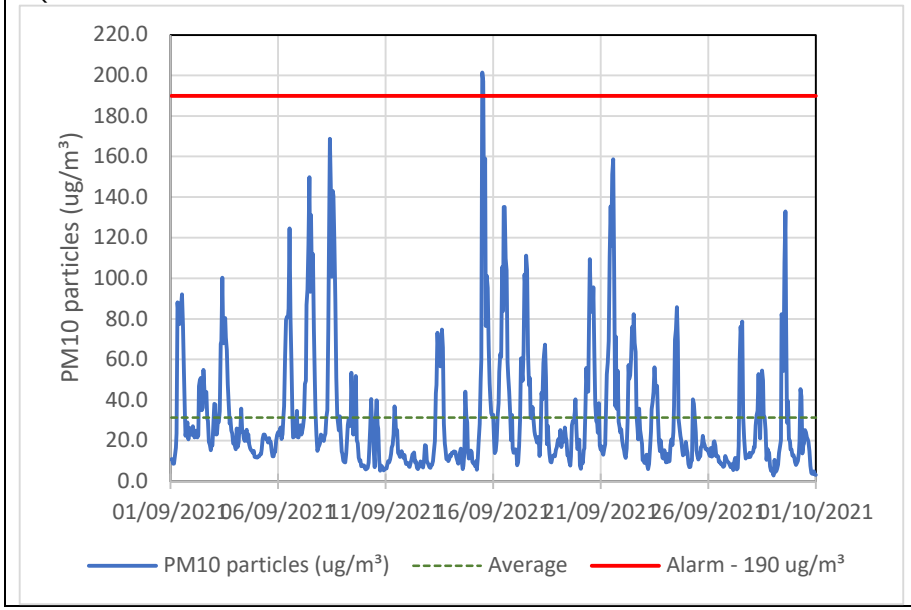

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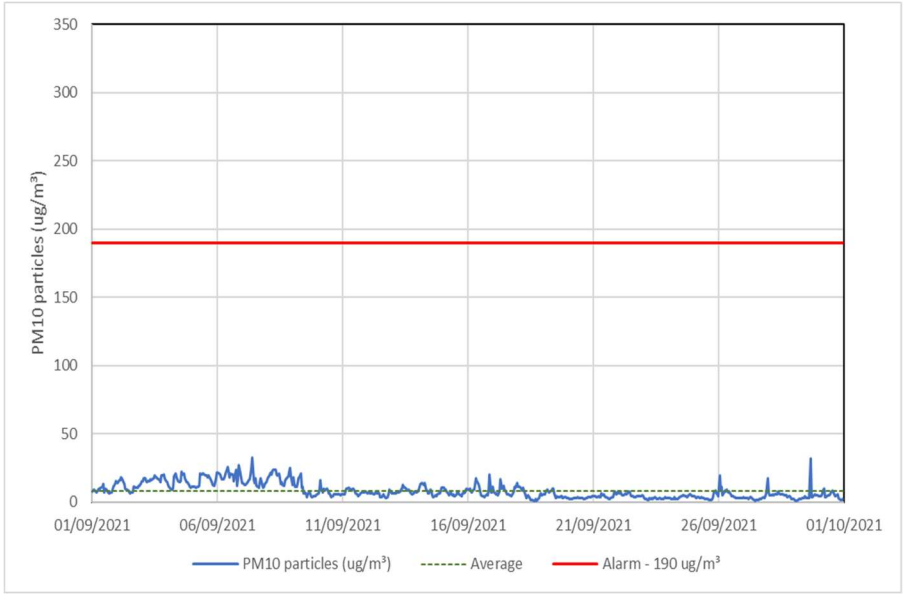
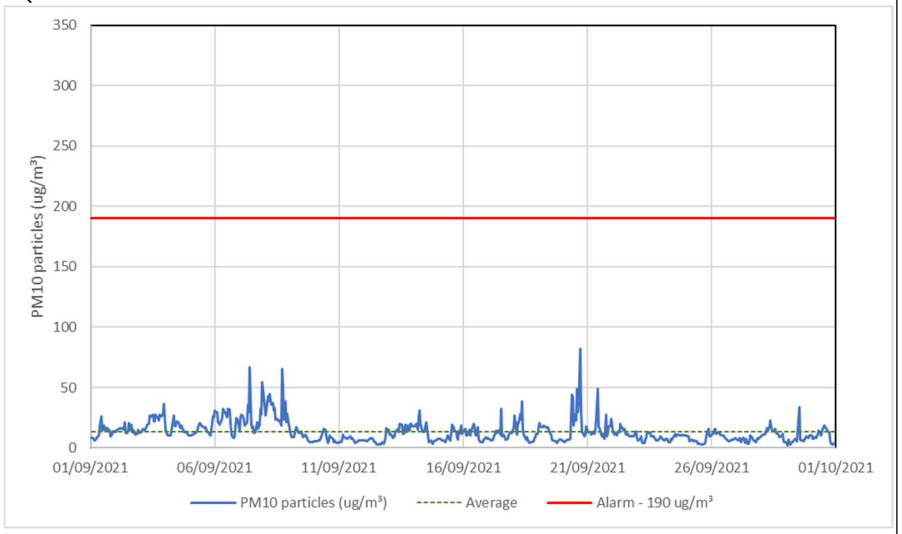
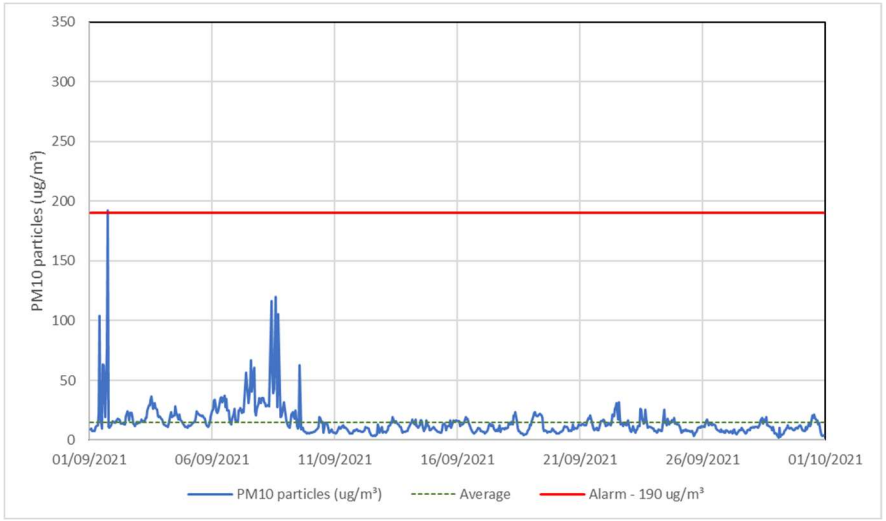


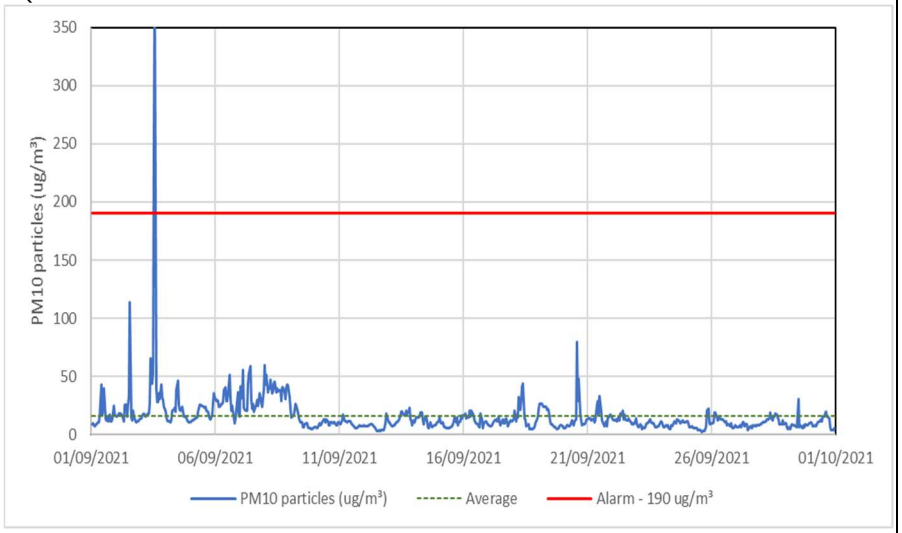
AQ037



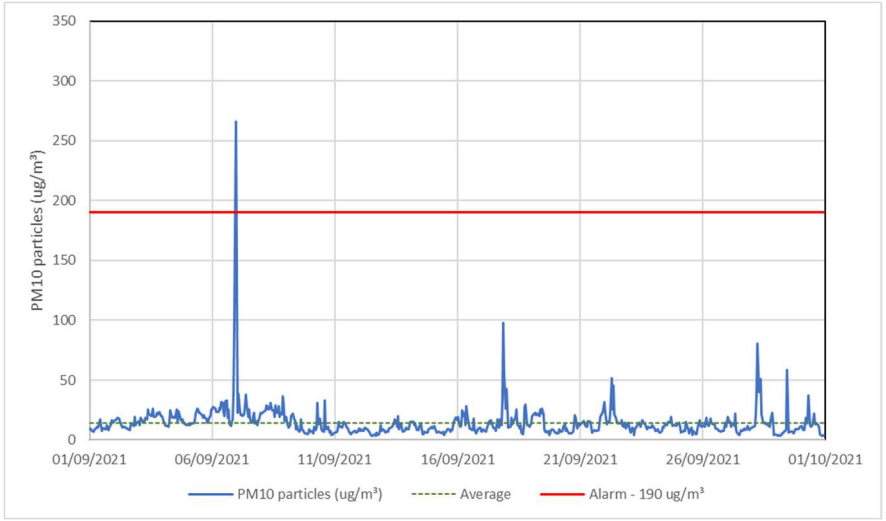
AQ038



AQ039



AQ042



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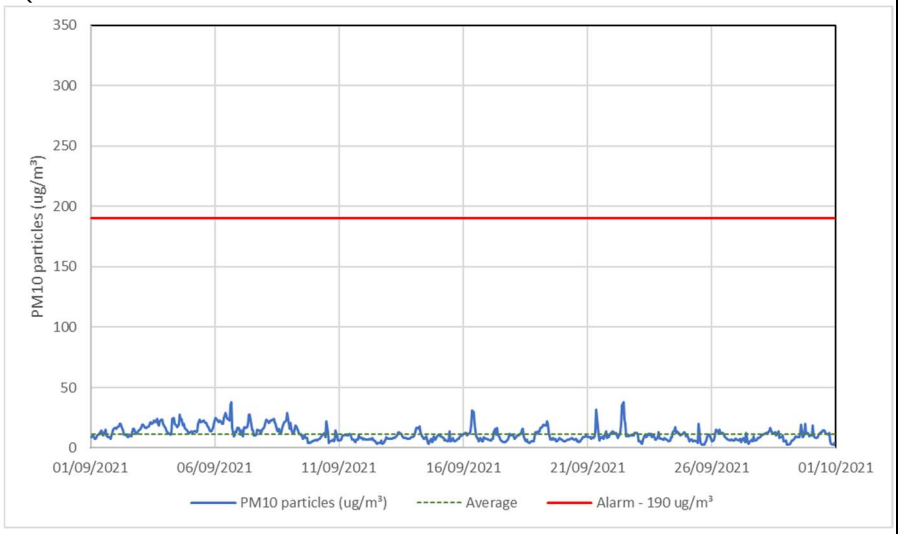
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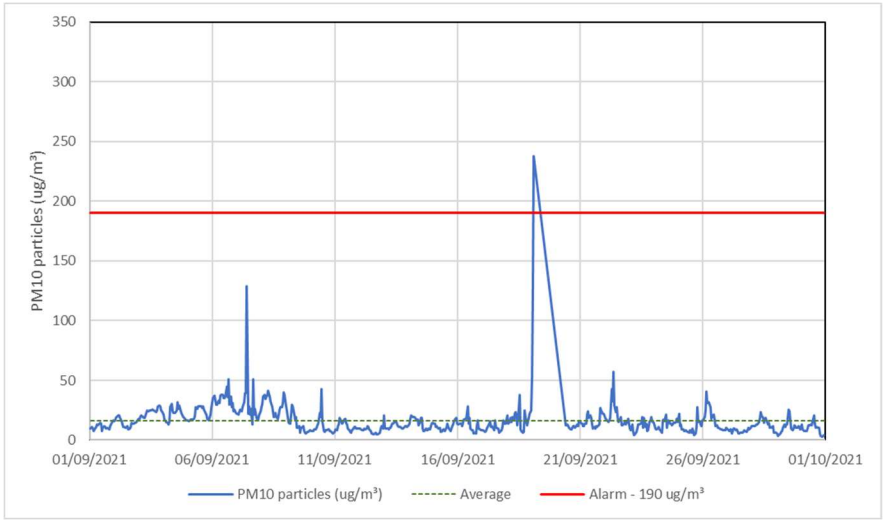
300
250
200
150
100
50
0
PM10 particles (ug/m³)
01/09/2021
06/09/2021
11/09/2021
16/09/2021
21/09/2021
26/09/2021
01/10/2021
PM10 particles (ug/m³)
Average
Alarm - 190 ug/m³

AQ051


350
300
250
200
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50
0
PM10 particles (ug/m³)
01/09/2021
06/09/2021
11/09/2021
16/09/2021
21/09/2021
26/09/2021
01/10/2021
PM10 particles (ug/m³)
Average
Alarm - 190 ug/m³

Appendix C – Air Quality Monitoring Results

Table 4: NO_2 monitoring locations around highways, NO_2 concentrations and monthly monitoring results with running mean for 2021 (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	47	Tube Missing	45	48	35	51	42					46
HS2-000020BN7	The Approach street sign	520959, 181102	56	47	45	41	49	38	29	38					43
HS2-000020BQF	Conway Drive sign post	520856, 181733	58	53	49	53	51	46	42	40					49
HS2-000020BQG	Lamp post outside No 1. Wells House Road on Old Oak Common Lane	521312, 182033	39	44	38	36	38	15	32	40					35
HS2-000020BP6	Triplicate site next to the Ealing, Western Avenue Acton roadside automatic monitoring station	520430, 181950	51	51	46	41	48	37	41	32					43
HS2-000020BP7	Triplicate site next to the Ealing, Hangar Lane Gyratory roadside automatic monitoring station	518537, 182708	63	69	68	54	72	57	55	48					61

[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.*