HS2

March 2023

Air Quality and Dust Monitoring Monthly Report – March 2023

London Borough of Hillingdon

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Department for Transport

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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 Hillingdon (LBH) during February 2023 and March 2023 respectively.

1.1.2 Figure 1 to Figure 4 in Appendix A indicate the current worksites, together with air quality 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 works commenced in November 2019 and is expected to be completed by 2025. The current worksites, as presented in Appendix A, Figure 1 to Figure 4, include:

Gatemead and West Ruislip Embankment

- Breakspear Road South and River Pinn Underbridge piling operations;
- Concreting;
- Groundworks;
- Materials management; and
- Conveyor construction.

Copthall North and South

- Groundworks;
- Piling;
- Materials management;
- Concreting; and
- Shuttering works.

West Ruislip Portal

- Materials management (tunnel boring machine arisings); and
- Conveyor construction.

South Ruislip

- Vent shaft construction;
- Ground works;
- Piling operations;
- Concrete works; and
- Materials management.

Northern Sustainable Placement Area (NSPA)

- Materials movements; and
- Groundworks;

Southern Sustainable Placement Area (SSPA)

- Site mobilisation and set-up;
- Spoil treatment area construction;
- Materials movements; and
- Groundworks.

CCV Dews Lane

- HOAC Compound: operation;
- Haul Road and Jetty Maintenance: operation and maintenance;
- Ground Investigation Works: GI works;
- Pier Construction: arch from deck for FRC works for pile cap and pier, standard piers FRC works for pile cap and pier, post-tensioning of AFD legs and tower crane mob / demob;
- ATFS: site preparation and bulk earthworks fill;
- Pumping Water Management: pumping water management ch 25.900 to 29.500;
- Satellite Welfares;
- Generator Farms;
- Core Drilling of Concrete;
- South Abutment: earthworks/stabilisation, FRC early works on SE, drainage works, removal of sheet piles, South Abutment construction stage 1 - continuity of activity 41.04, South Abutment construction stage 2, South Abutment construction stage 2 – earthworks and yard supporting activities;
- Pile Trimming;
- Grand Union Canal Work: operation and maintenance;
- Fencing;
- Environmental Maintenance;
- Cofferdam Excavation: cofferdam excavation, dewatering, waling beams and concrete plugs;
- Stockpiling Activity HOAC: stockpile of material coming from other sites;
- RC Crossing: the emergency dismantling of obstruction;
- Launching Girder and Deck Works: span segmental erection with launching gantry, shoring steel structure erection and dismantling, external PT and an internal PT stressing & grouting;
- Deck Finishes Logistics: preparation and operation of storage yards and installation of below deck access provision, traffic management on the deck surface, installation of parapets, noise barriers, troughs, pipes, steel works and other minor material to the storage yards and deck, installation of access at the top of the deck (HAKI stairs) and foundation works in the north embankment, deck finishes support plan;
- Deck Finishes – On-deck Construction: construction of robust kerbs, installation of parapets, construction of concrete stitch and filling of voids and top openings;

- Deck Finishes – In-deck Construction: diaphragm walls and concrete works within the deck; and
- Landscaping: advanced works including removal of cofferdams.

CVV Moorhall Road

- North and South Moorhall Road: compound operation;
- Haul Road and Jetty Maintenance: operation and maintenance;
- Ground Investigation Works: GI works;
- Pier Construction: arch from deck, standard piers FRC works for pile cap and pier, post tensioning of AFD legs and tower crane mob / demob;
- ATFS: site preparation and bulk earthworks fill;
- Pumping Water Management: pumping water management ch 25.900 to 29.500;
- Satellite Welfares;
- Generator Farms;
- Core Drilling of Concrete;
- Pile Trimming;
- Fencing;
- Environmental Maintenance;
- Cofferdam Excavation: cofferdam excavation, dewatering, waling beams and concrete plugs;
- RC Crossing: the emergency dismantling of obstruction;
- Launching Girder and Deck Works: span segmental erection with launching gantry, shoring steel structure erection and dismantling, internal PT stressing & grouting and external PT; and
- Deck Finishes Logistics: preparation and operation of storage yards and installation of below deck access provision, traffic management on the deck surface, installation of parapets, noise barriers, troughs, pipes, steel works and other minor material to the storage yards and deck, installation of accesses top of the deck (HAKI stairs) and foundation works in the north embankment, deck finishes support plan;
- Deck Finishes – On-deck Construction: construction of robust kerbs, installation of parapets, construction of concrete stitch and filling of voids and top openings;
- Finishes – In-deck Construction: diaphragm walls and concrete works within the deck; and
- Landscaping: advanced works including removal of cofferdam.

1.1.5 Fourteen (14) dust monitors are installed around worksites, where works are underway`. The sites returned a low to high risk 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 in Figure 5. 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 190µg/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 (March 2023) and are reported in Appendix B, Table 2.

1.1.9 Data capture was below 90% for multiple monitors in March 2023 due to power supply and access issues.

1.1.10 Diffusion tube monitoring of Nitrogen Dioxide (NO_2) is undertaken at eleven (11) locations around highways within the LBH as part of the management of air quality where significant effects may occur as a result of the scheme.

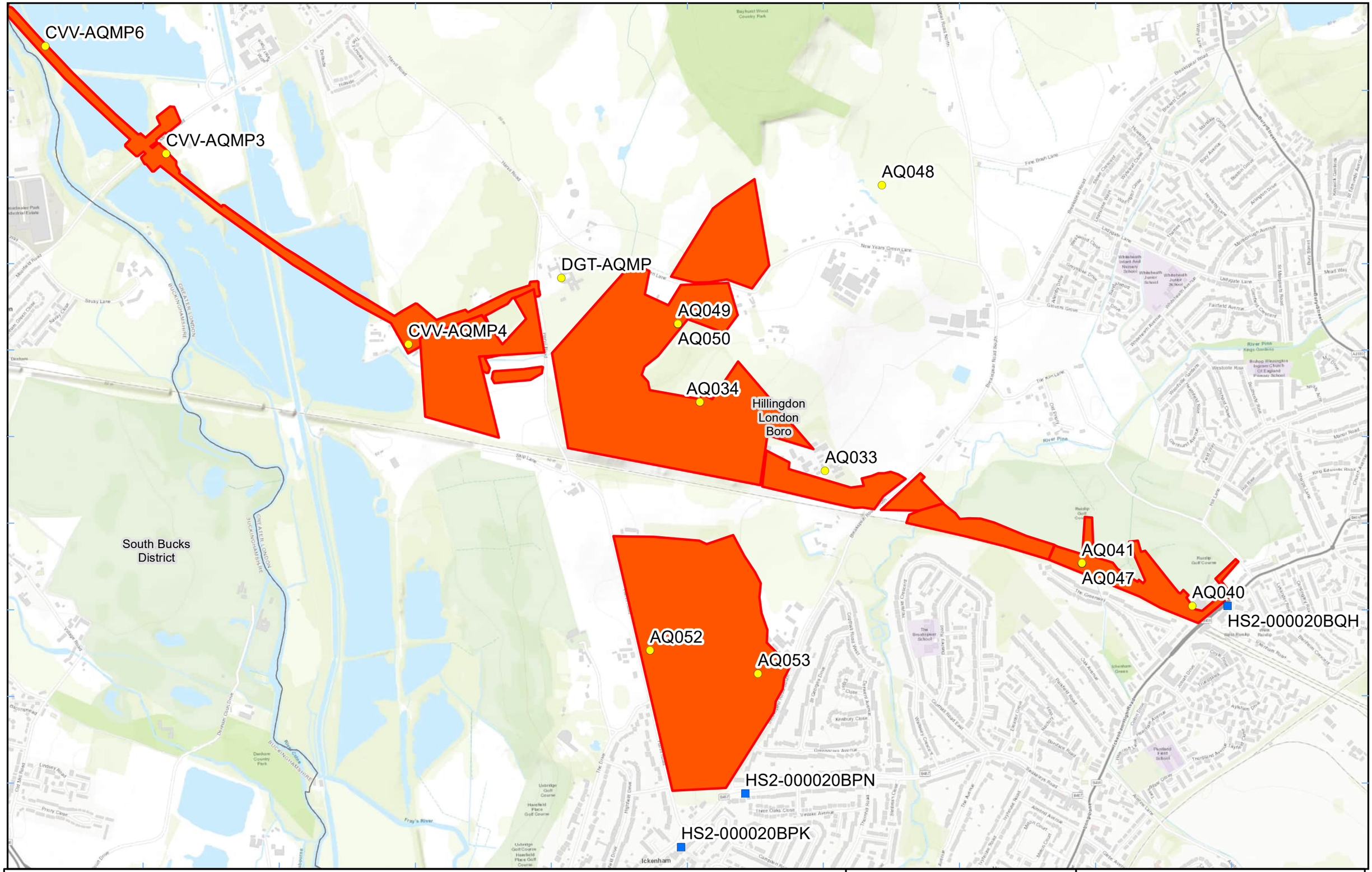
1.1.11 Diffusion tube monitoring results are as provided from the laboratory analysis, and therefore still require various analysis and adjustments to be undertaken. Final corrected results will be presented and described in the annual report. However, based on the results to date, no unexpected values 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 (March 2023).

Appendix A – Worksites and Monitoring Locations

Figure 1 to Figure 4: Current monitoring locations within the LBH



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), swisstopo, © OpenStreetMap contributors, and the GIS User Community

Map Number

Map Name

Worksite & Monitoring Locations In LBH (Sheet 1)

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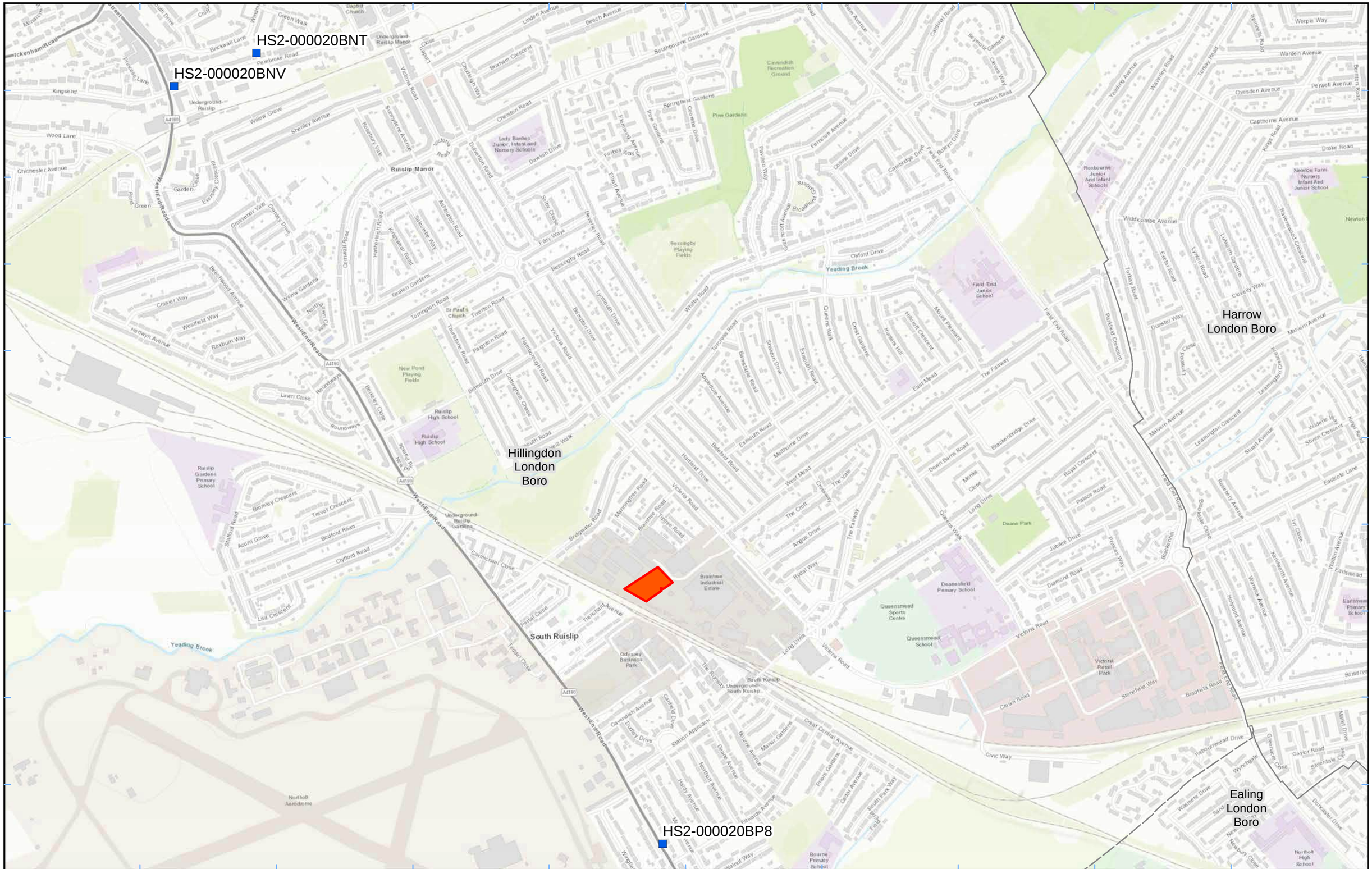

Legend

- Diffusion Tube
- District Borough Unitary Boundaries
- Worksite

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Map Number

Map Name

Worksite and Monitoring Locations In LBH (Sheet 2)

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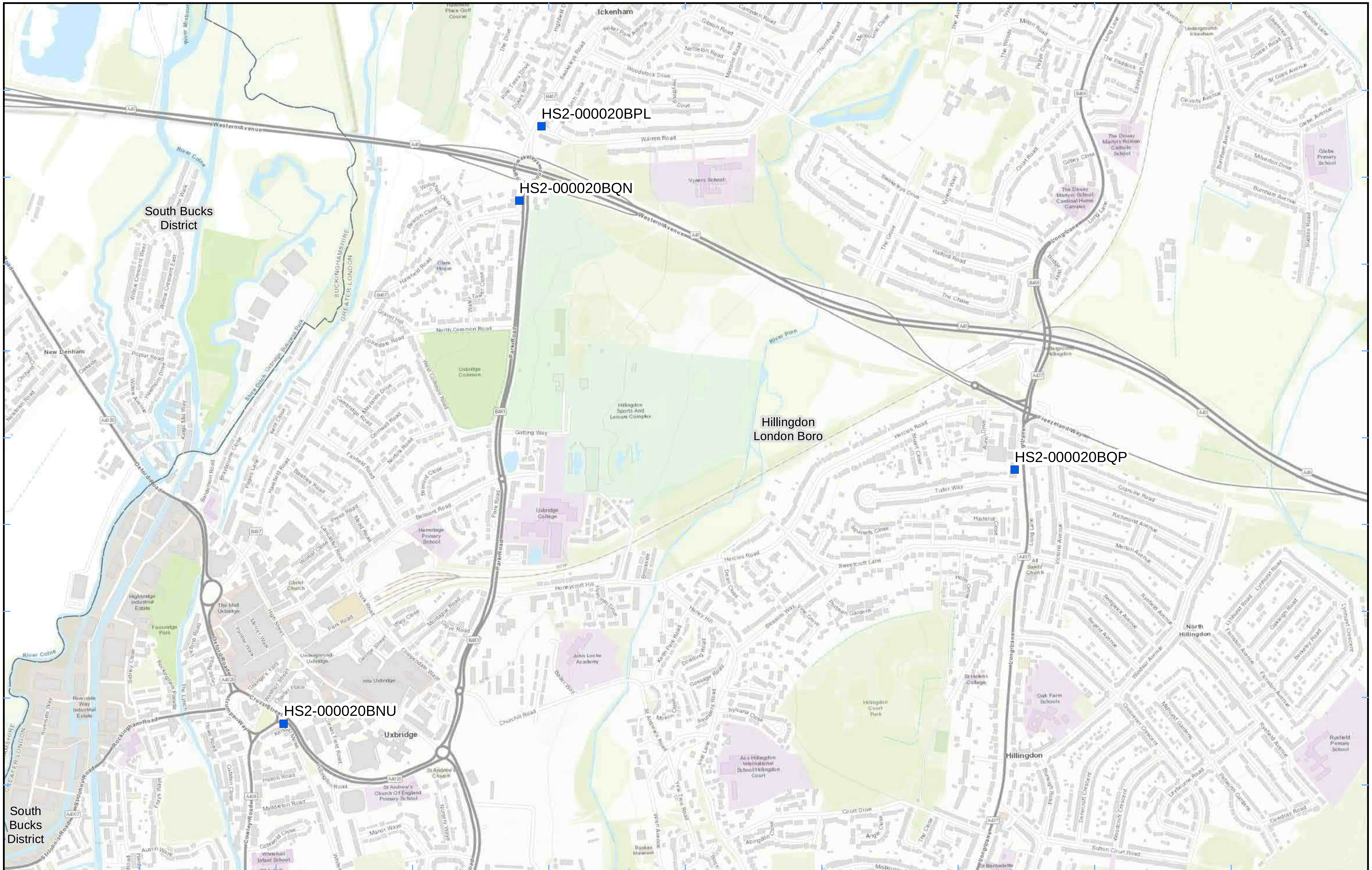
Doc Number:

Date: 08/12/20



Legend

- Diffusion Tube
- District Borough Unitary Boundaries

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Map Number

Map Name

Monitoring Locations In LBH (Sheet 3)

London Borough of Hillingdon

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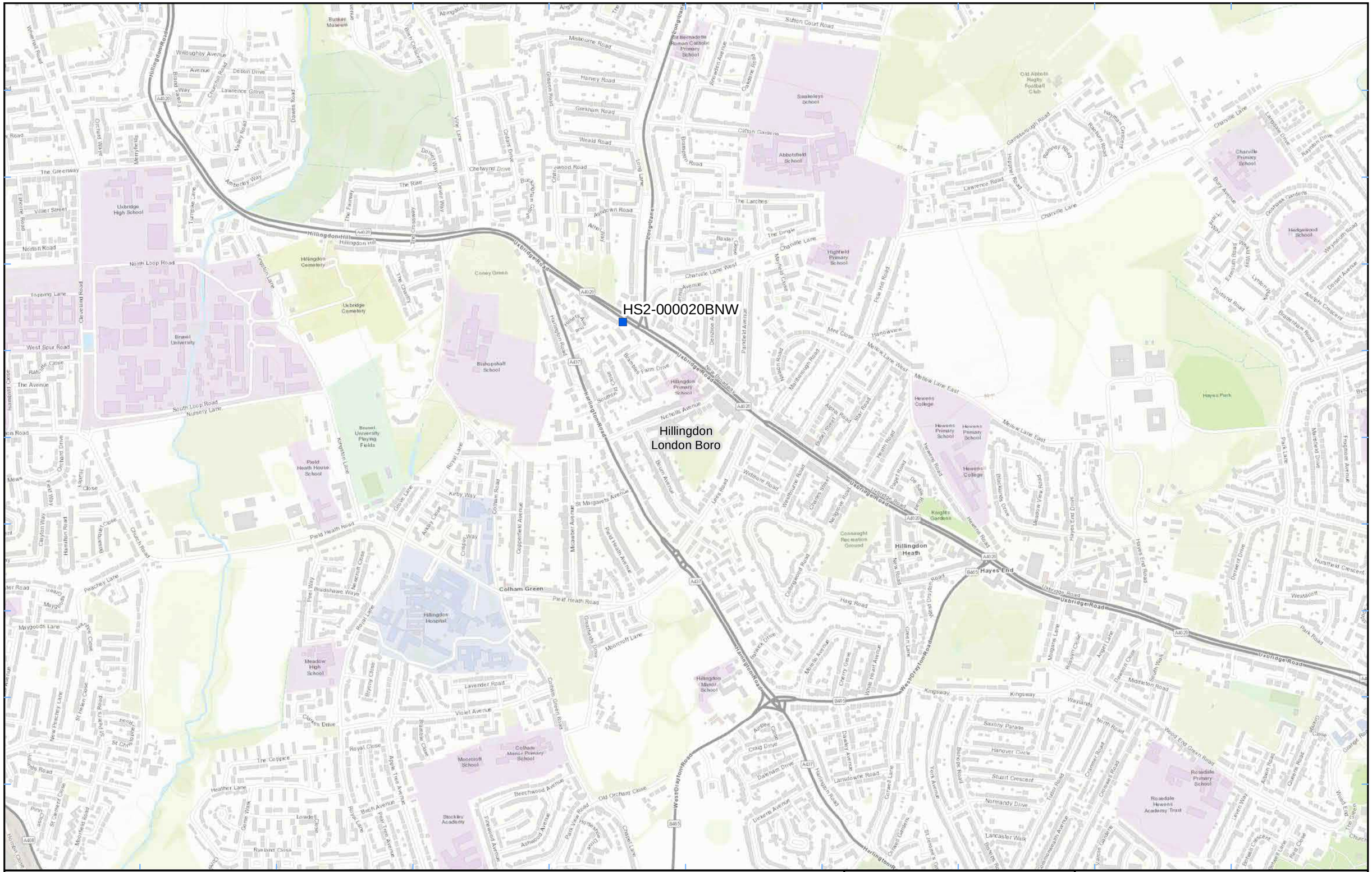
Doc Number:

Date: 08/12/20



Legend

- Diffusion Tube
- District Borough Unitary Boundaries

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Map Number

Map Name

Monitoring Locations In LBH (Sheet 4)

London Borough of Hillingdon

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Scale at A3: 1:10,000

0 100 200 300 400 Metres

Doc Number:

Date: 08/12/20

Appendix B – Dust Monitoring Results

Table 1: Dust monitoring locations and March 2023 Results

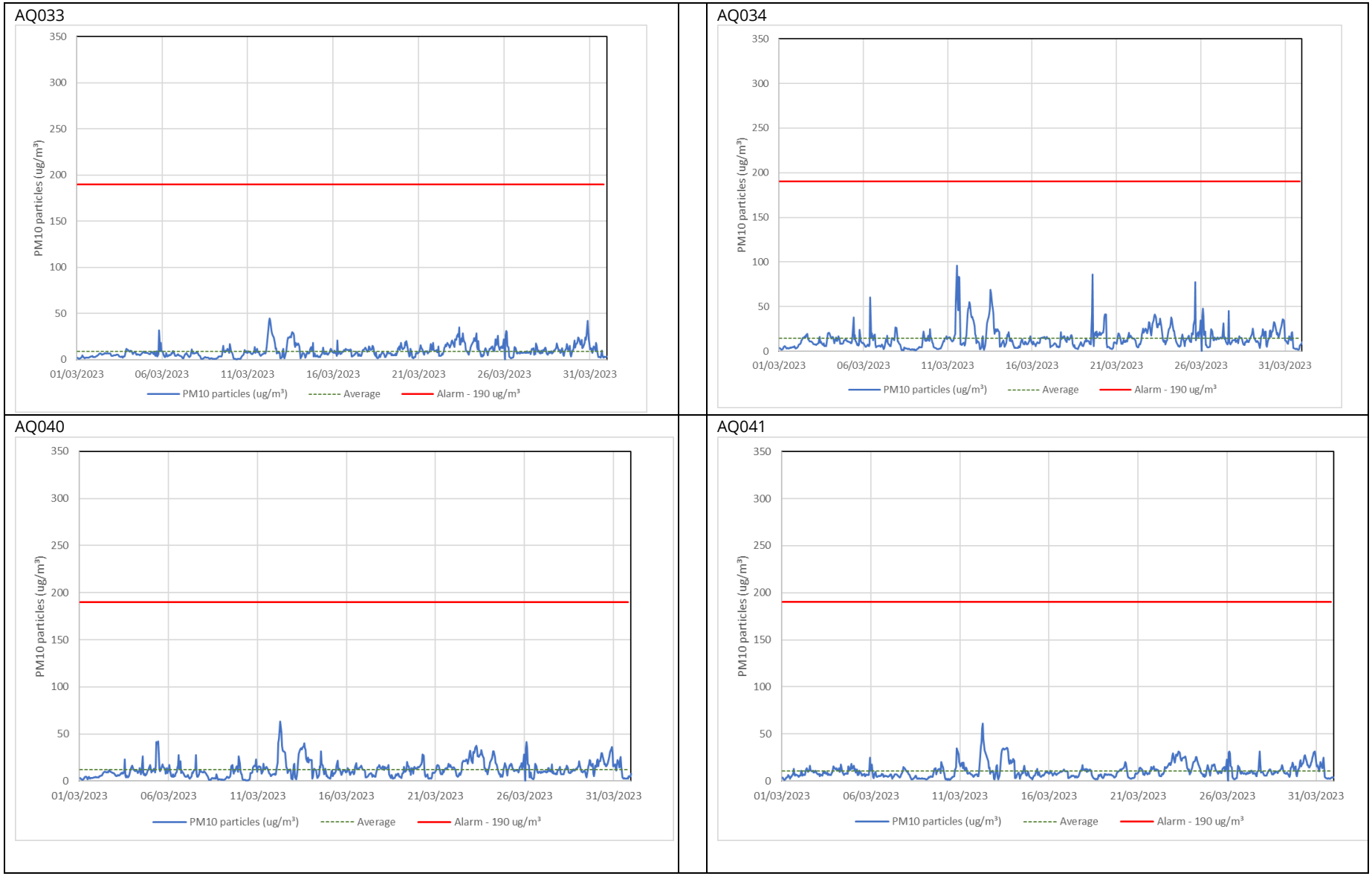
Monitoring site ID	Coordinates (X,Y)	Location description	Dust risk rating for site	Monitoring site active during period	Change to site since previous period report	Mean 1-hour PM_{10} concentration ($\mu g/m^3$)	Minimum 1-hour PM_{10} concentration ($\mu g/m^3$)	Maximum 1-hour PM_{10} concentration ($\mu g/m^3$)	Number of 1- hour periods exceeding trigger level of 190 $\mu g/m^3$	Data capture (%)
AQ033	507045, 187352	Breakspear Road South	M	Yes	N	9.1	0.5	44.9	0.0	100.0
AQ034	506608, 187592	Copthall Cutting	L	Yes	N	14.2	1.0	95.8	0	100.0
AQ040	508328, 186880	West Ruislip Golf Course	M	Yes	N	12.3	0.7	63.2	0	100.0
AQ041	507942, 187028	West Ruislip Portal	M	Yes	N	10.6	1.3	61.3	0	100.0
AQ047	507942, 187029	West Ruislip Portal	M	Yes	N	10.7	0.4	98.3	0	81.2
AQ048	507243, 188349	Northern Sustainable Placement Area	M	Yes	N	12.8	0.5	796.1	3	100.0
AQ049	506531, 187865	Copthall North, Ancient Woodland	M	Yes	N	9.5	0.5	58.4	0	64.7
AQ050	506531, 187865	Copthall South Compound	H	Yes	N	9.0	0.5	177.9	0	100.0
AQ052	506433, 186725	Southern Sustainable Placement Area	H	Yes	N	No data	No data	No data	No data	No data
AQ053	506811, 186643	Southern Sustainable	H	Yes	N	7.2	0.5	45.3	0	53.6

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 (%)
		Placement Area								
CVV-AQMP3	504773, 188419	On the eastern boundary along south side of Moorhall Road	Medium	Yes	Yes	8.3	1.0	50.0	0	100.0
CVV-AQMP4	505589, 187793	On the western boundary of HOAC at Dews Lane	Medium	Yes	Yes	6.8	1.0	31.0	0	99.0
CVV-AQMP6	504321, 188835	Korda Lake Compound, along haul route north of Moorhall road.	Medium	Yes	Yes	6.1	1.0	20.0	0	46.0

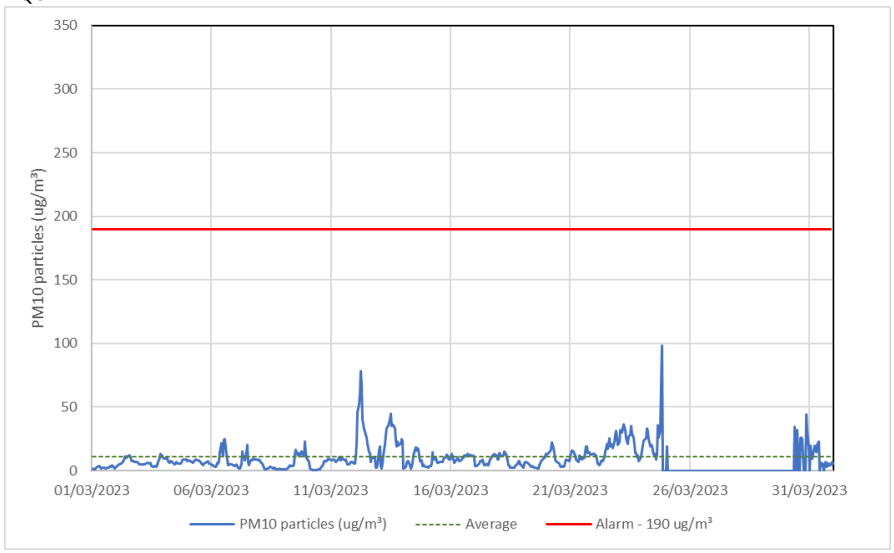
Table 2: Summary of exceedances of trigger level in March 2023

Monitoring site ID	Period exceeding trigger level	Investigation	Outcomes / Resolution / Remedial measures implemented
AQ048	29/03/2023 18:01 – 19:00; 796.12 $\mu g/m^3$ 19:01 – 20:00; 357.32 $\mu g/m^3$	There is an ongoing fault (into April) with the hydrogen generator powering the monitor resulting in intermittent power loss to the monitor. Low power to the pump and internal heater along with inclement wet and cold weather has resulted in erratic readings.	Monitor to be serviced and the generator replaced.
AQ048	31/03/2023 08:00 – 09:00; 205.57 $\mu g/m^3$		

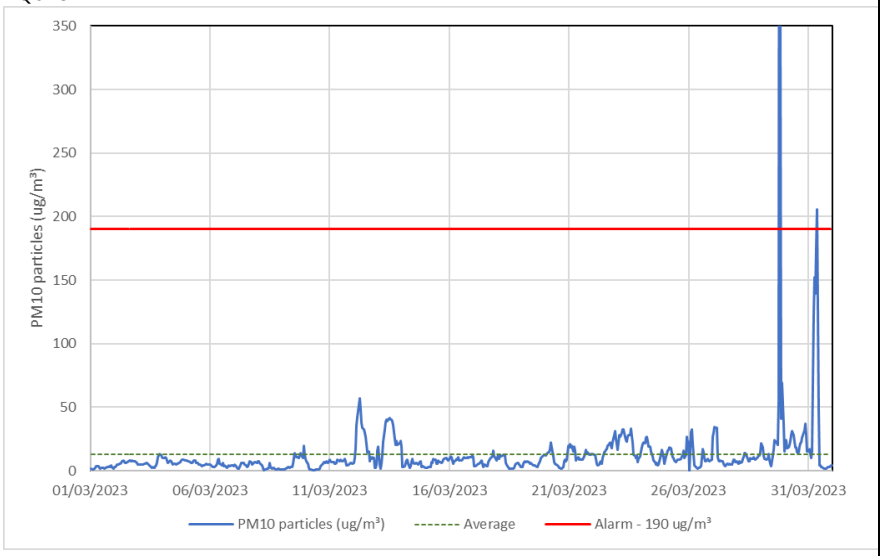
Figure 5: Construction dust 1-hour mean indicative PM_{10} concentration for dust monitors



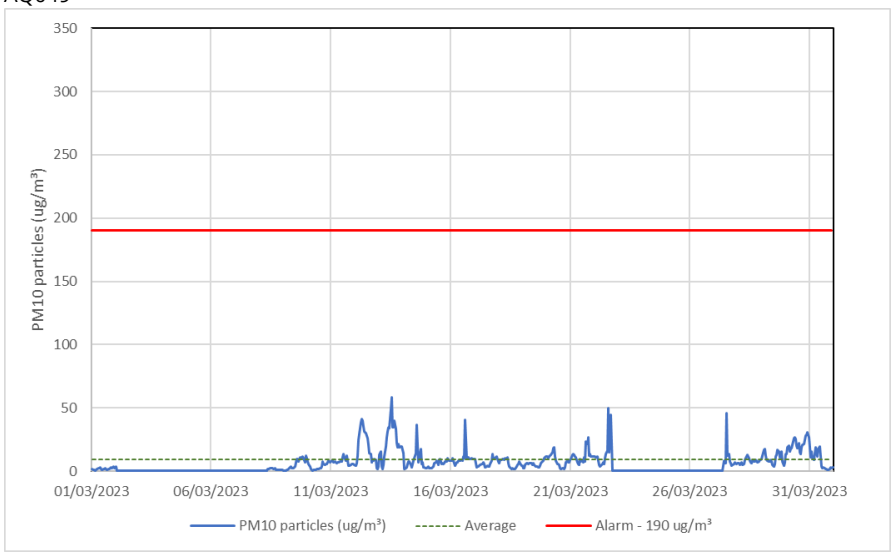
AQ047



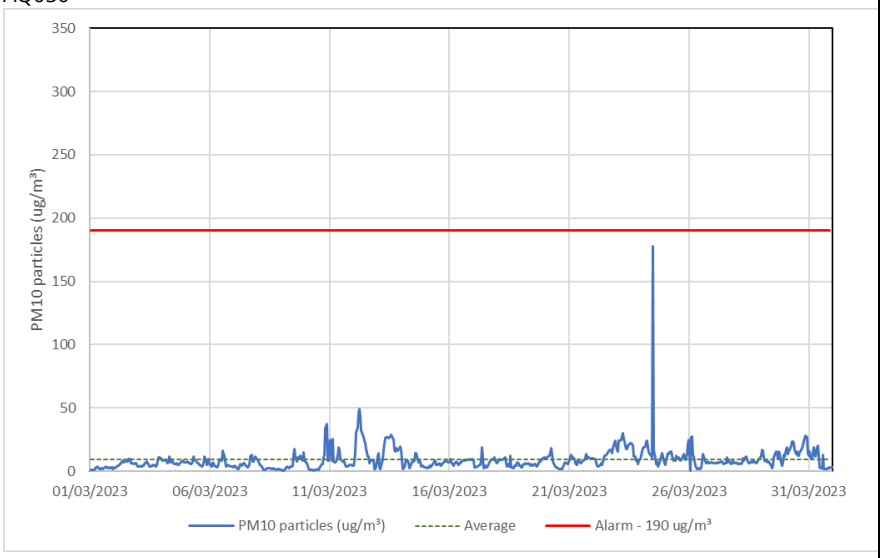
AQ048



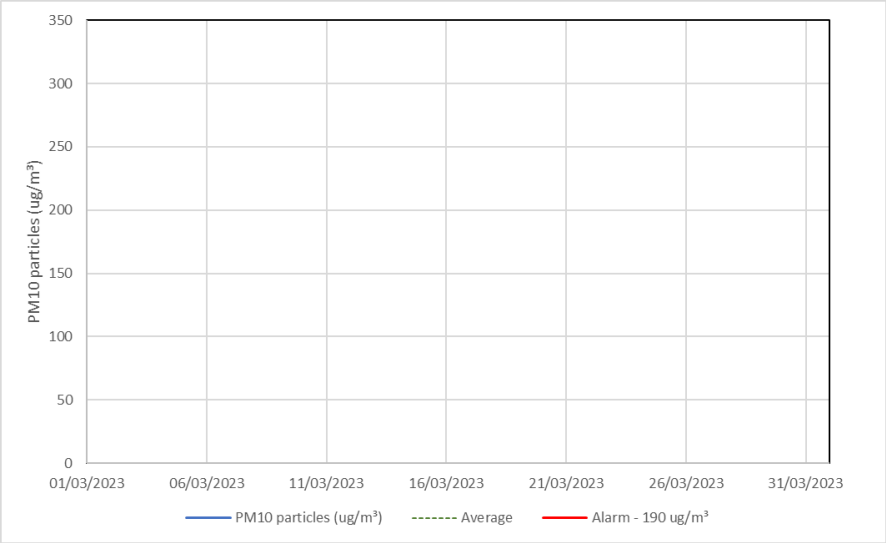
AQ049



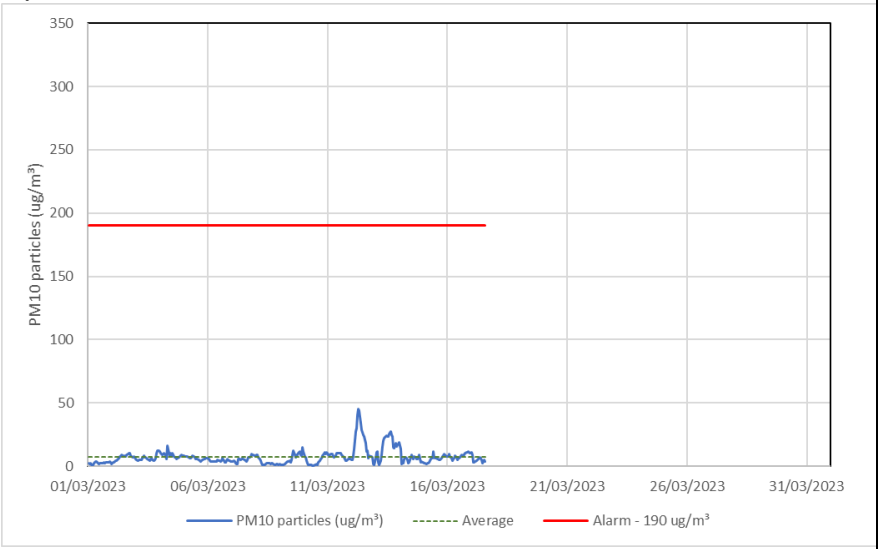
AQ050



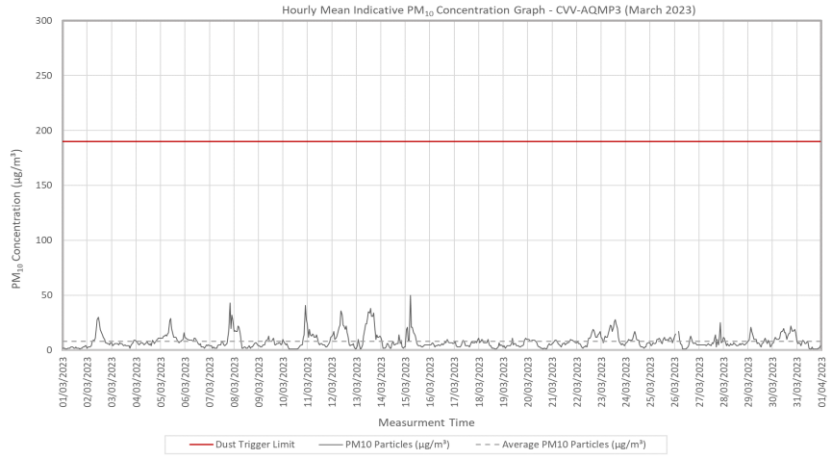
AQ052



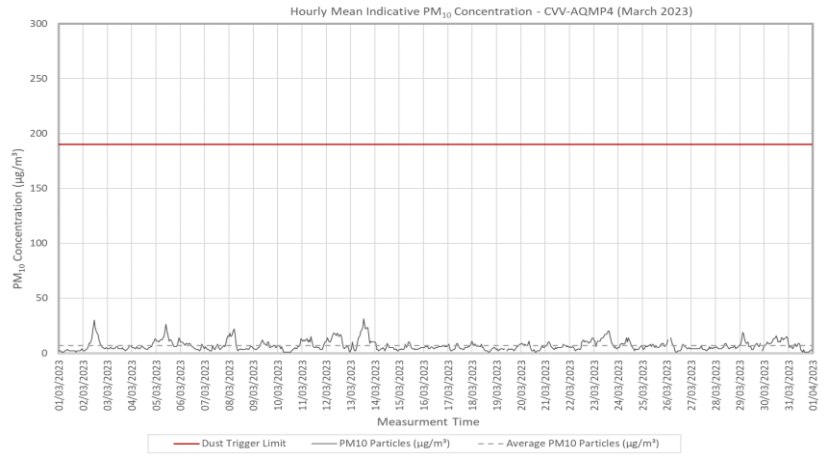
AQ053



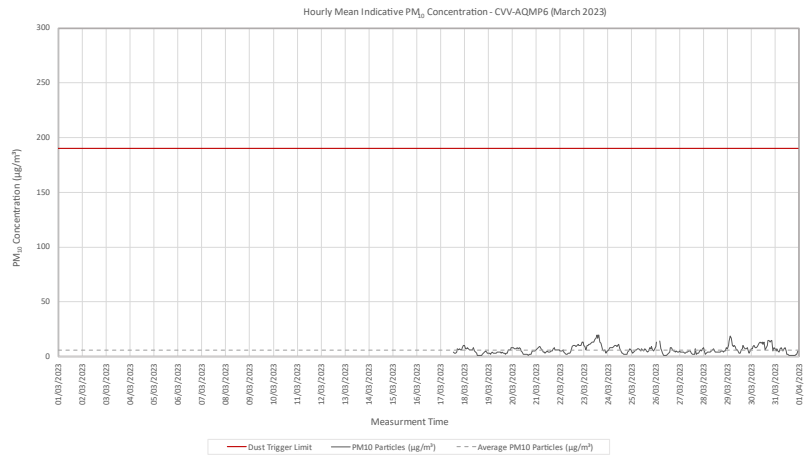
CVV-AQMP3



CVV-AQMP4



CVV-AQMP6


Hourly Mean Indicative PM10 Concentration - CVV-AQMP6 (March 2023)
PM10 Concentration (µg/m³)
300
250
200
150
100
50
0
01/03/2023
02/03/2023
03/03/2023
04/03/2023
05/03/2023
06/03/2023
07/03/2023
08/03/2023
09/03/2023
10/03/2023
11/03/2023
12/03/2023
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25/03/2023
26/03/2023
27/03/2023
28/03/2023
29/03/2023
30/03/2023
31/03/2023
01/04/2023
Measurment Time
Dust Trigger Limit
PM10 Particles (µg/m³)
Average PM10 Particles (µg/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]
HS2-000020BNT	Lamp post on Pembroke Road	509678, 187214	17	30											24
HS2-000020BNU	Cowley Road sign post at junction with Hillingdon Road	505492, 183926	52	45											48
HS2-000020BNV	High Street sign post at junction with Pembroke Road	509439, 187117	42	41											42
HS2-000020BNW	Signpost on A4020 Uxbridge Road at junction with Long Lane	507365, 182687	44	47											45
HS2-000020BPK	Lamp post in crescent off Swakeleys Road	506542, 186037	39	40											39
HS2-000020BPL	Warren Road sign post on corner of Swakeleys Road and Warren Road	506240, 185660	45	42											44
HS2-000020BPN	Lamp post on B467	506767, 186224	37	42											40

[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.*

Monitoring Site ID	Location description	Coordinates (X, Y)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean[1]
HS2-000020BQH	Lamp post on High Road Ickenham	508451, 186879	38	47											42
HS2-000020BQN	Lamp post on Park Road	506176, 185444	42	40											41
HS2-000020BQP	Sign post on Long Lane	507614, 184663	16	42											29
HS2-000020BP8	Triplicate site at South Ruislip roadside automatic monitoring station	510858, 184916	37	39											38