HS2

August 2021

Air Quality and Dust Monitoring Monthly Report – August 2021

London Borough of Hillingdon

gov.uk/hs2

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.

High Speed Two (HS2) Limited,
Two Snowhill
Snow Hill Queensway
Birmingham B4 6GA

Telephone: 08081 434 434

General email enquiries: HS2enquiries@hs2.org.uk

Website: www.gov.uk/hs2

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

High Speed Two (HS2) Limited has actively considered the needs of blind and partially sighted people in accessing this document. The text will be made available in full on the HS2 website. The text may be freely downloaded and translated by individuals or organisations for conversion into other accessible formats. If you have other needs in this regard please contact High Speed Two (HS2) Limited.

recycle

Printed in Great Britain on paper containing at least 75% recycled fibre.

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 July and August 2021 respectively.

1.1.2 Figure 1 to Figure 5 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 Construction works commenced within the LBH in November 2019 and is expected to be completed by 2025. The current worksites, as presented in Appendix A, Figure 1 to Figure 5, include:

- Gatemead Embankment, Breakspear Road South and River Pinn Underbridge groundworks and materials management;
- Groundworks, piling and materials management at Copthall North and South;
- West Ruislip Portal piling and groundworks and materials management;
- South Ruislip ground works, piling operations and materials management;
- Northern Sustainable Placement Area (NSPA) site mobilisation, set- up and groundworks; and
- Southern Sustainable Placement Area (SSPA) site mobilisation and set- up.

1.1.5 The Colne Valley Viaduct (CVV), Dews Lane and CVV Moorhall Road worksites fall within the administrative boundary of the LBH. The Dews Lane phase of works commenced in July 2017 and are ongoing. Activities within August 2021 included: The current phase of works at the CVV Moorhall Road worksites commenced within LBH in September 2020 and is currently ongoing. Activities for each worksite within August 2021, as presented in Appendix A, Figure 1 to Figure 5, include:

Dews Lane Site:

- Jetty piling: piling plant, support plant and compound;
- HOAC Compound: compnd operation and de-sanding compound;
- Cofferdam Sheet Piling: piling plant and support plant;
- Permanent main piling works: boring pile, de-sanding pile bore at pile position, installing reinforcement cage and concreting pile, bored pile break-down to prepare the pile surface, grout curtain around viaduct pile groups mainentance plant;

- Haul Route: civil works, earthworks, and drainage; and
- Ground investigation Works: GI works.

CVV Moorhall Road:

- Jetty piling: piling plant, support plant, platform and compound;
- South Moorhall road compound: compound operation and de-sanding compound;
- North Moorhall road compound: compound operation;
- Haul Route: civil works and earthworks and drainage;
- Ground investigation works: GI works;
- Causeway Piling: sheet pile installation and support plant;
- Cofferdam Sheet Piling: piling plant and support plant; and
- Permanent main piling works: boring pile, desanding pile bore at pile position, installing reinforcement cage and concreting pile, bored pile break-down to prepare the pile surface, grout curtain around viaduct pile groups maintenance plant.

1.1.6 Eleven (11) dust monitors are installed around worksites, where demolition, earthworks, construction and trackout activities are underway. The sites returned a low to medium dust risk rating.

1.1.7 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 6. 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.

1.1.8 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.

1.1.9 There were four (4) dust trigger alerts recorded during the monitoring period (August 2021). Triggers are presented in Appendix B, Table 3. All other results were in line with the expected ranges.

1.1.10 Data capture for monitor AQ047, was below 90% for the month of August 2021 due to the monitor's commencement of monitoring. Monitors CVV-AQMP3 and CVV-AQMP6 also had data capture below 90%, as a result of technical issues and/or loss of power due to insufficient sunlight / wind for monitors using solar / wind power. All concerned issues have been or are in the process of being resolved.

1.1.11 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.

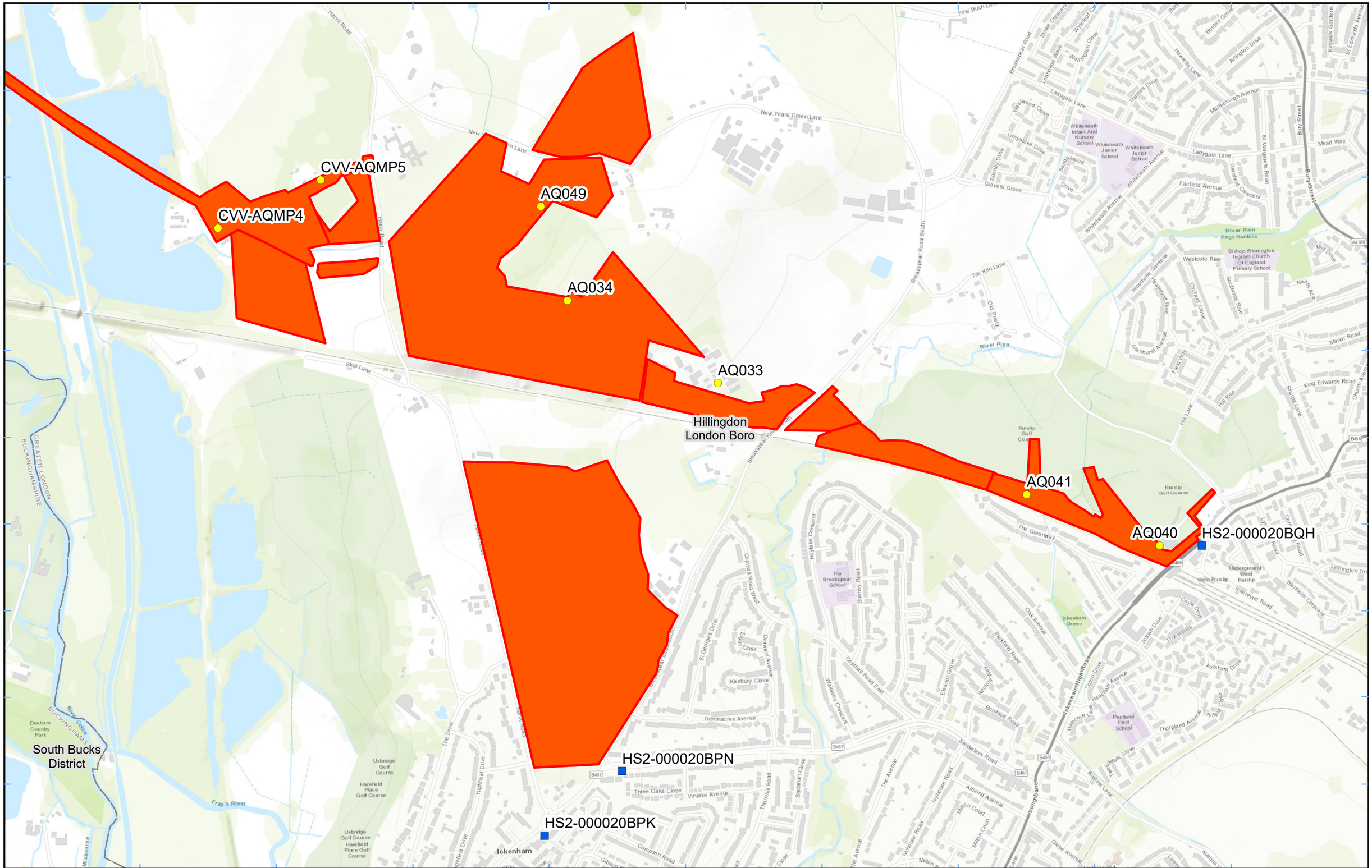
1.1.12 Diffusion tube monitoring results are provided from the laboratory analysis, and therefore still require various analysis and adjustments to be undertaken. Final corrected results will be presented and described in the annual report. However, based on the results to date, no unexpected values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

1.1.13 NO_2 monitoring locations and results are presented in Appendix C, Table 3, together with the 2021 running mean.

1.1.14 There were no (0) complaints received, relating to air quality, during this reporting period (August 2021).

Appendix A – Worksites and Monitoring Locations

Figure 1 to Figure 5: Current monitoring locations within the LBH



Legend

- Diffusion Tube
- Dust Monitor
- Worksite
- 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 LBH (Sheet 1)

London Borough of Hillingdon

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: 18/06/21

HS2-000020BNT

HS2-000020BNV

HS2-000020BP8

Harrow
London Boro

Hillingdon
London
Boro

Ealing
London
Boro

Legend

Diffusion Tube

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 LBH (Sheet 2)

London Borough of Hillingdon

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

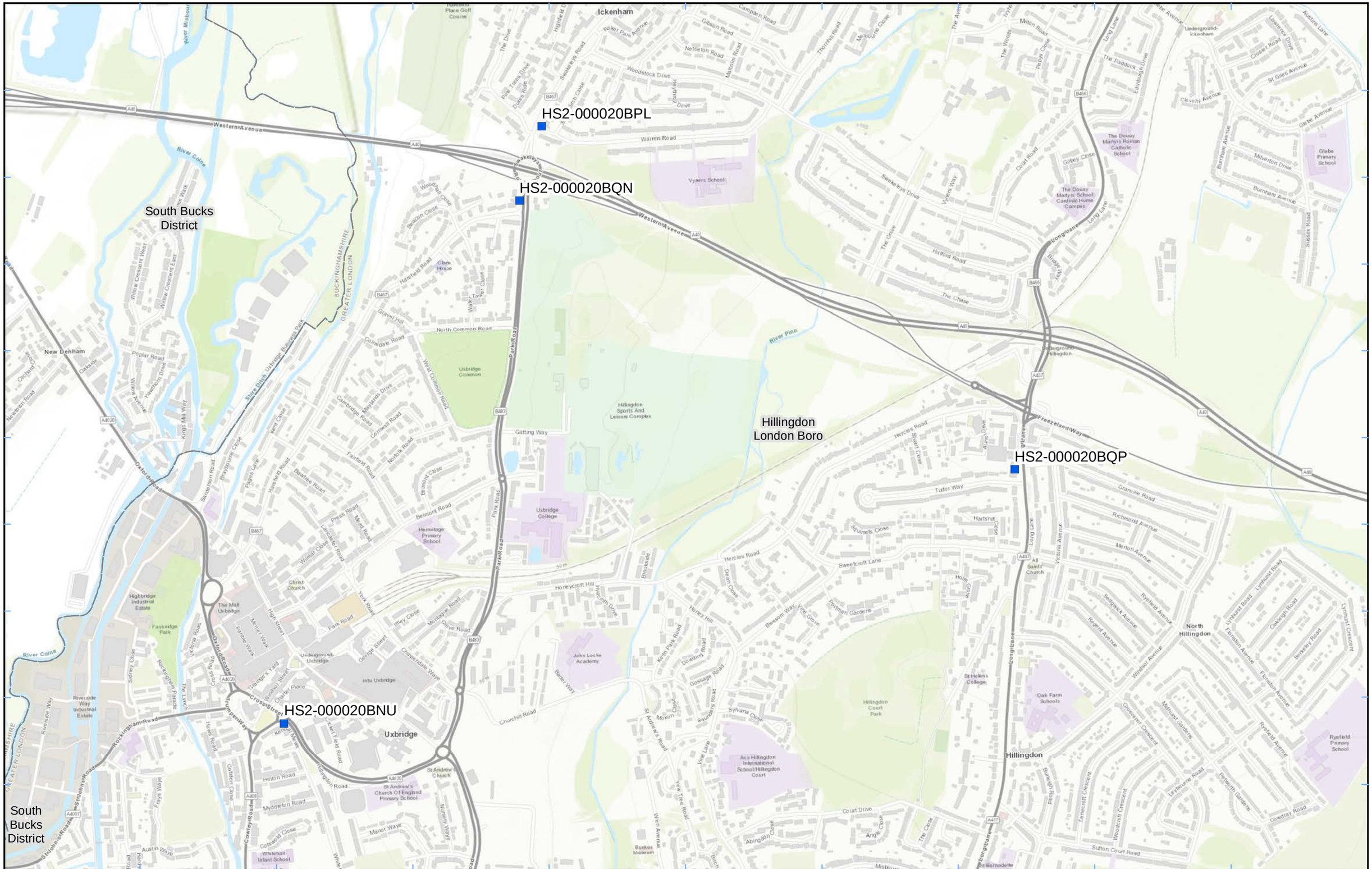
Scale at A3: 1:10,000

0 100 200 300 400

Metres

Doc Number:

Date: 08/12/20



Legend

- Diffusion Tube
- 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

Monitoring Locations In LBH (Sheet 3)

London Borough of Hillingdon

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

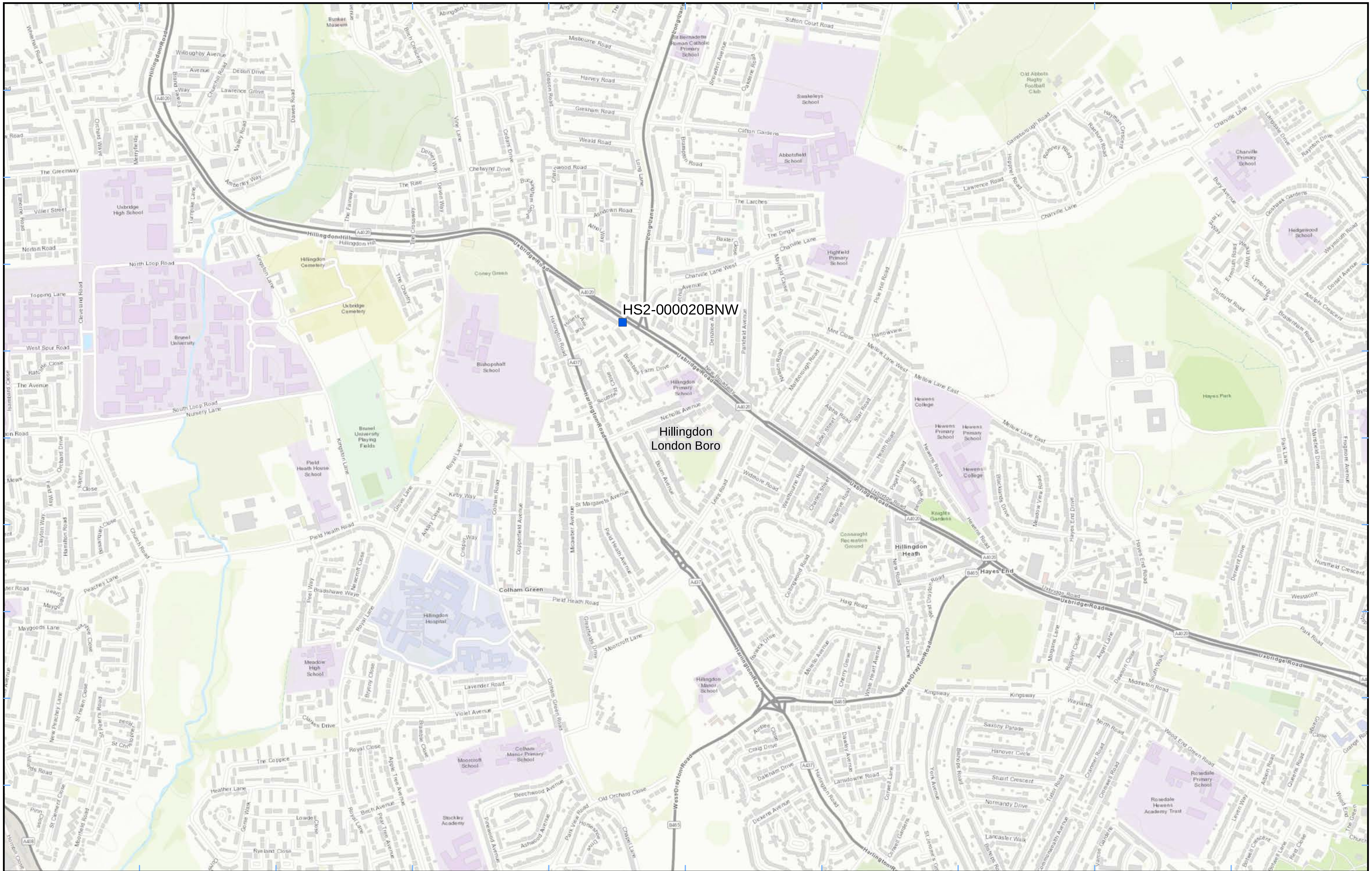
Scale at A3: 1:10,000

0 100 200 300 400

Metres

Doc Number:

Date: 08/12/20



Legend

- Diffusion Tube
- 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

Monitoring Locations In LBH (Sheet 4)

London Borough of Hillingdon

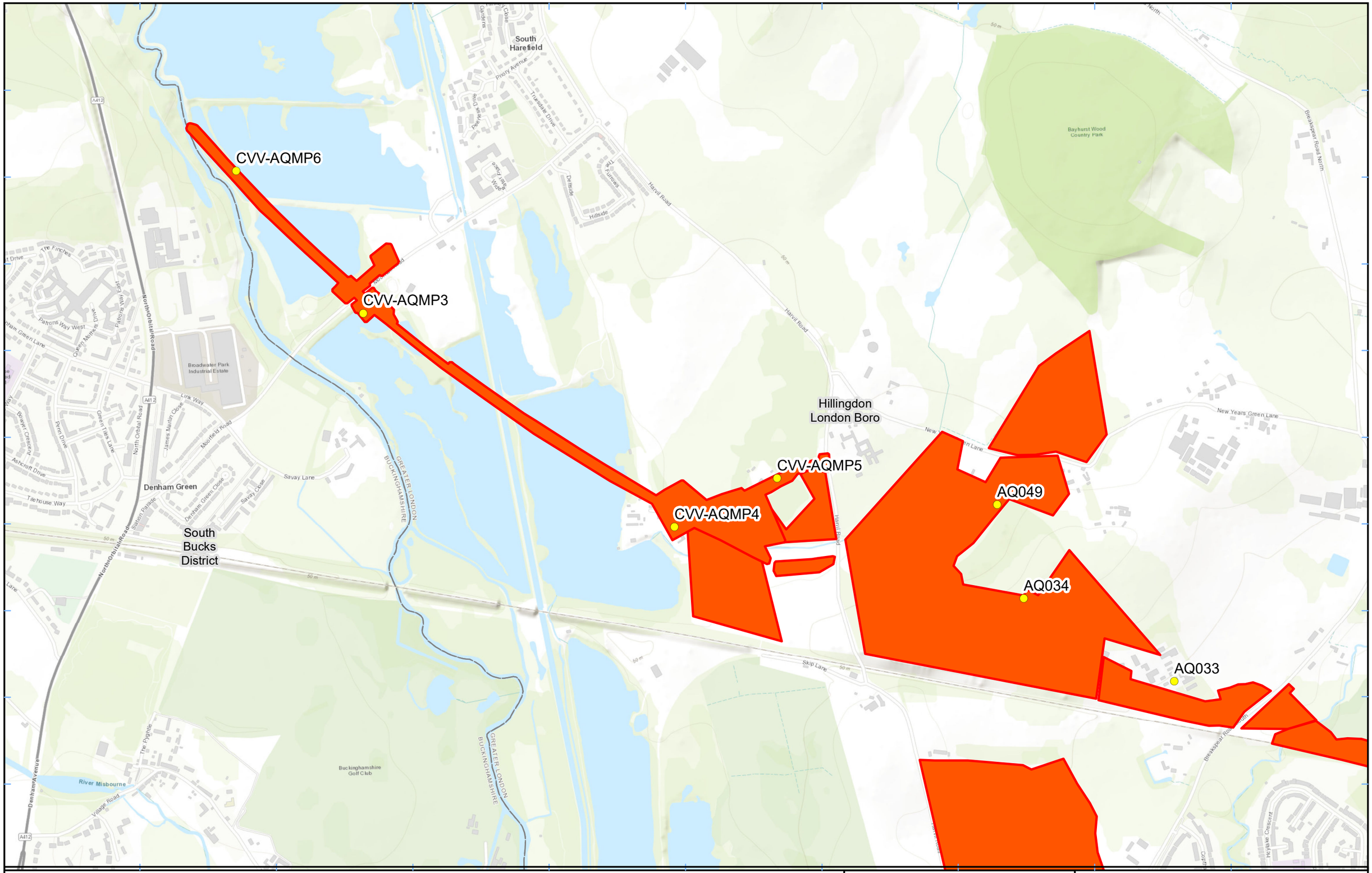
Registered in England. Registration number 06791686.
Registered office: 2 Snowhill, Queensway, Birmingham B4 6GA.

Scale at A3: 1:10,000

0 100 200 300 400
Metres

Doc Number:

Date: 08/12/20



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 LBH (Sheet 5)

London Borough of Hillingdon

HS2 Ltd accept no responsibility for any circumstances, which arise from the reproduction of this map after alteration, amendment or abbreviation or if it is issued in part or issued incomplete in any way.

Scale at A3: 1:10,000

0 100 200 300 400
Metres

Doc Number:

Date: 18/06/21

Appendix B – Dust Monitoring Results

Table 1: Dust monitoring locations and August 2021 Results

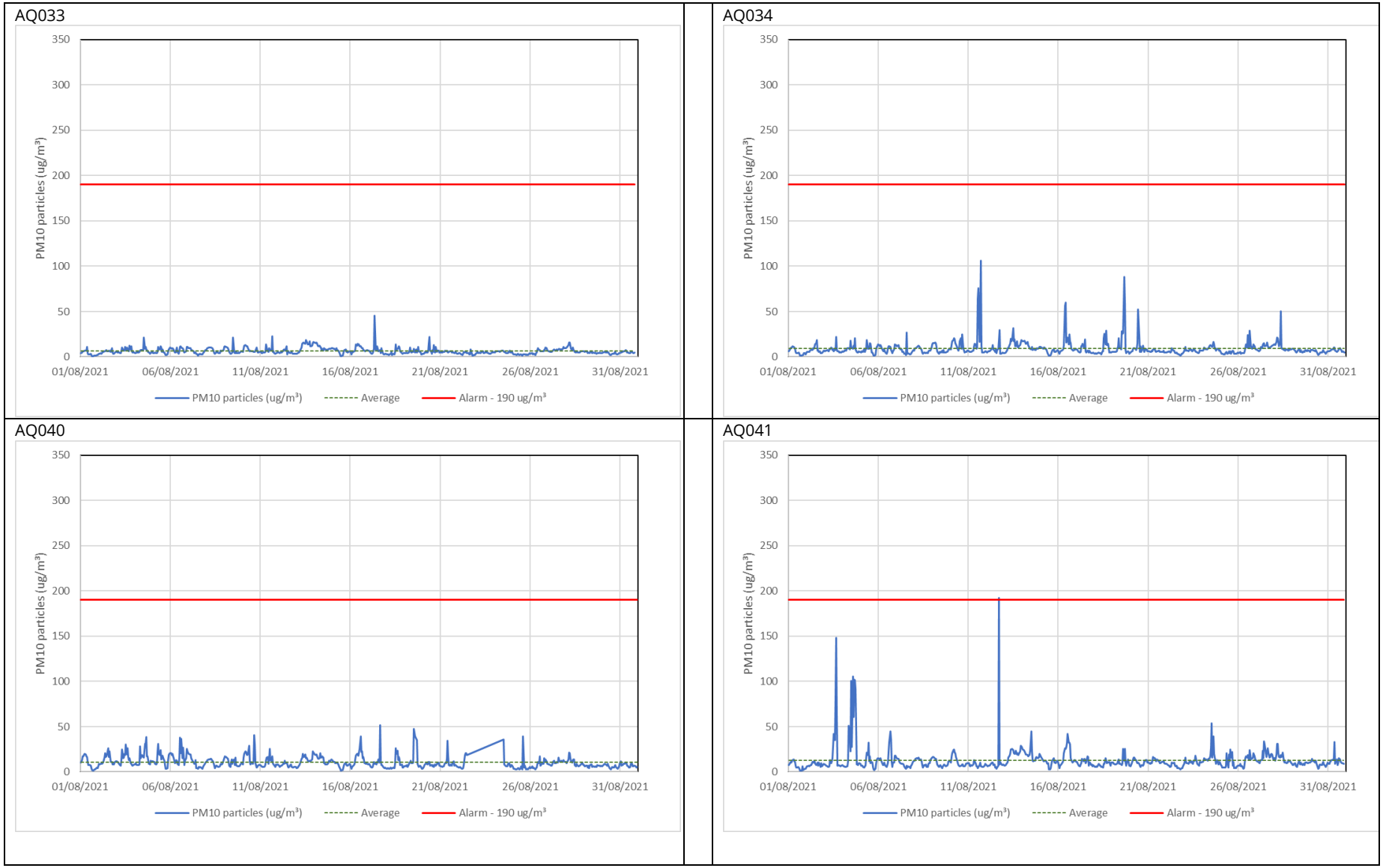
Monitoring site ID	Coordinates (X,Y)	Location description	Dust risk rating for site	Monitoring site active during period	Change to site since previous period report	Mean 1-hour PM_{10} concentration ($\mu g/m^3$)	Minimum 1-hour PM_{10} concentration ($\mu g/m^3$)	Maximum 1-hour PM_{10} concentration ($\mu g/m^3$)	Number of 1- hour periods exceeding trigger level of 190 $\mu g/m^3$	Data capture (%)
AQ033	507045, 187352	Breakspear Road South	L	Yes	N	6.4	0.9	45.8	0	100.0
AQ034	506608, 187592	Copthall Cutting	M	Yes	N	9.1	1.3	106	0	100.0
AQ040	508328, 186880	West Ruislip Golf Course	M	Yes	N	10.7	1.7	52	0	93.5
AQ041	507942, 187028	West Ruislip Portal	M	Yes	N	12.8	1.1	192	1	100.0
AQ047	507942, 187029	West Ruislip Portal	M	Yes	N	11.4	2.1	92.1	0	24.0
AQ049	506531, 187865	Copthall North, Ancient Woodland	M	Yes	N	15.1	1.7	282.6	3	100.0
AQ050	506531, 187865	Copthall South Compound	M	Yes	N	10.3	1.2	77	0	100.0
CVV-AQMP3	504743, 188459	On the eastern boundary along south side of Moorhall Road	M	Yes	Yes	5.0	1.0	14.0	0	28.0
CVV-AQMP4	505589, 187793	On the western boundary of	M	Yes	Yes	5.6	1.0	33.0	0	100.0

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 (%)
		HOAC at Dews Lane								
DGT-AQMP	506124, 188025	At the Dog Trust on Harvil Road.	M	No	Yes	5.3	1.0	28.0	0	100.0
CVV-AQMP6	504321, 188835	Korda Lake Compound, along haul route north of Moorhall road.	M	Yes	Yes	5.4	1.0	31.0	0	89.0

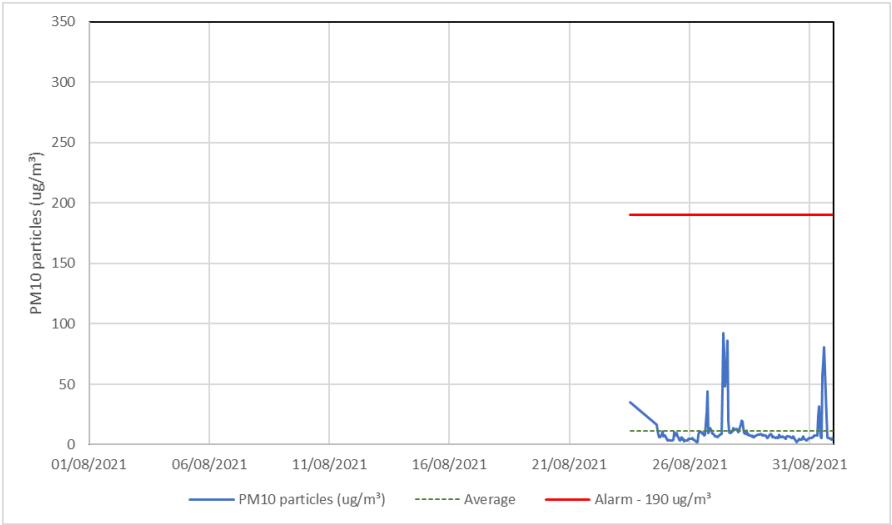
Table 2: Summary of exceedances of trigger level in August 2021

Monitoring site ID	Period exceeding trigger level	Investigation	Outcomes / Resolution / Remedial measures implemented
AQ041	12/08/2021 16:01-17:00 192 µg/m^3	AQ041 is located at the southwestern site boundary with the railway (opposite The Greenway). It is considered that the isolated trigger was associated with nearby passing machinery as there were limited operations in the immediate area.	There are five dust canons deployed to this south-eastern section of the site and moved around according to the activities taking place. In addition, the on-site bowser and road sweeper maintain circuits of internal haul routes throughout each day. The site team will continue to remain vigilant of the need to maintain dust suppression in all areas of the site.
AQ049	10/08/2021 13:01 – 14:00; 215.6 µg/m^3 14:01 – 15:00; 282.6 µg/m^3 15:01 – 16:00; 202.9 µg/m^3	Monitor AQ049 is located at the western boundary of the Ancient Woodland on the North Copthall site south of Newyears Green Lane. At the time of the trigger alert works were underway on the crane assembly for the bridge construction over Newyears Green Lane. This included the delivery of counterweights for the crane via large articulated lorries. The dust monitor is located behind debris netting adjacent to the concrete haul road where the road inclines towards the current crane platform. The haul road is typically well-swept and damped down with a road sweeper and bowser as part of a daily regular circuit of all the site haul roads. On this occasion it was not because the articulated lorries required dry contact with the road surface for their full length, in order to reverse down the road safely. The apex and curvature of the road essentially meant that the point at which they required the most purchase and grip as they began the reverse downhill was the closest point to the monitor. It is considered that the elevated levels were limited to this particular location and activity; and not representative of the wider site conditions.	Once the lorries had completed their reversing manoeuvres and in place at the crane assembly point approx. 50m further downhill, the bowsers were again immediately redeployed to damp down the haul road. Subsequent monitored levels dropped and remained low thereafter. The site team will continue to remain vigilant of the need to maintain sweeping and dust suppression in all areas of the site, and sufficiently in advance of this operation when repeated in reverse when dismantling the crane to ensure both safety is not compromised and dust is keep to a minimum. The on-site bowser and road sweeper will continue to maintain circuits of all the internal haul routes throughout each day.

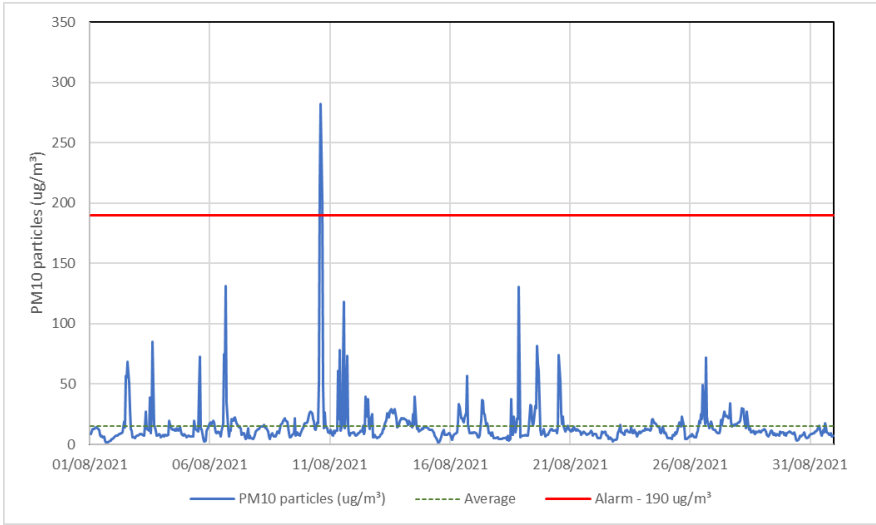
Figure 5: Construction dust 1-hour mean indicative PM_{10} concentration for dust monitors



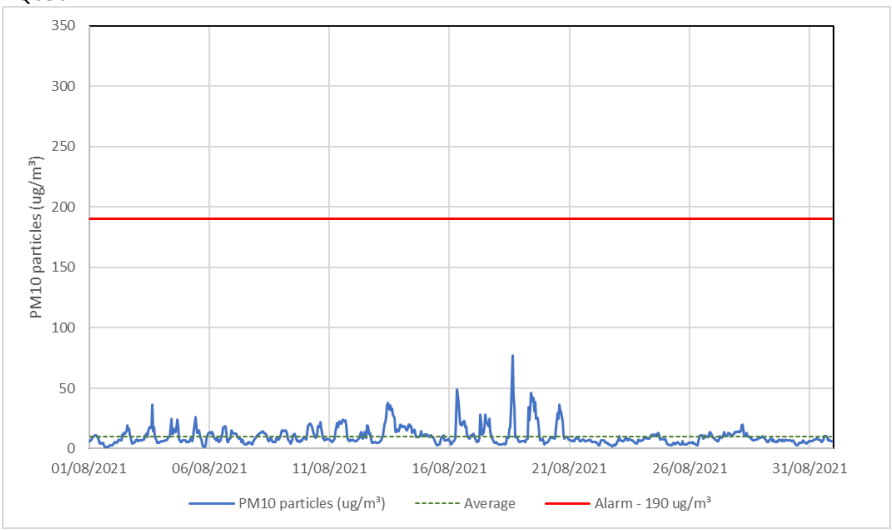
AQ047



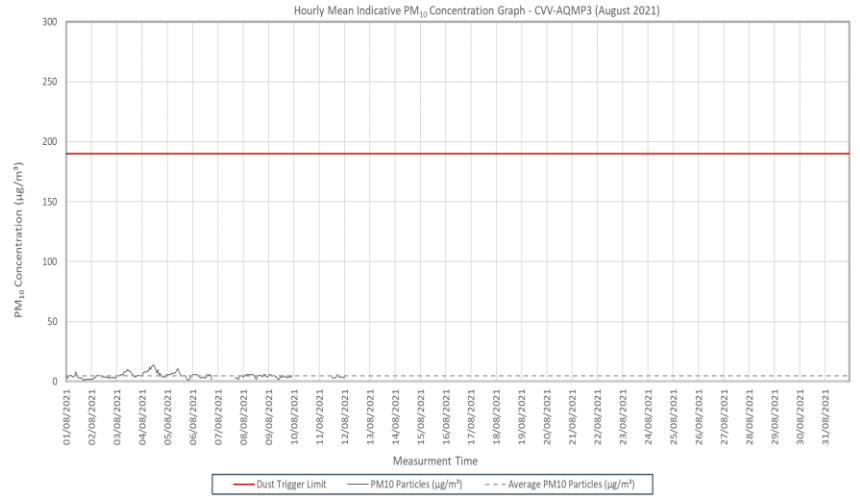
AQ049



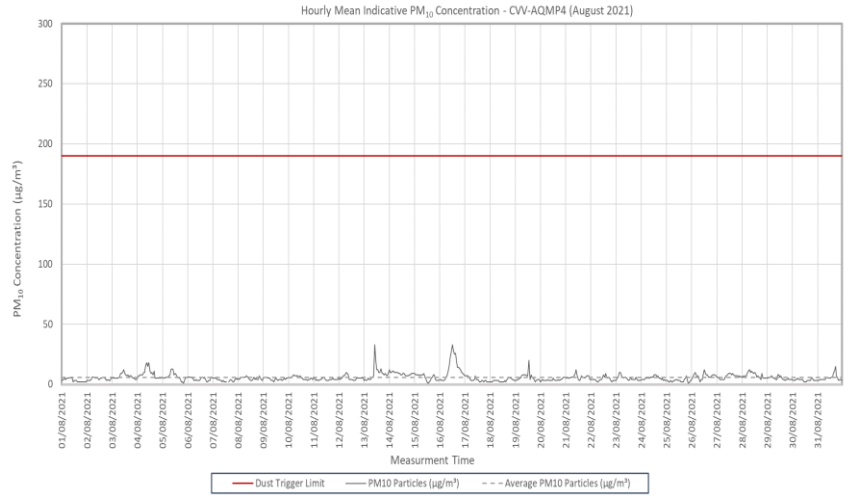
AQ050



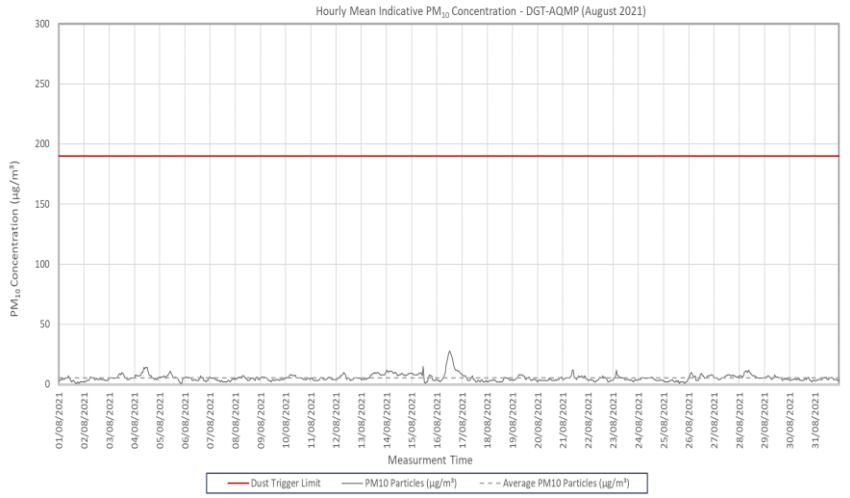
CVV-AQMP3



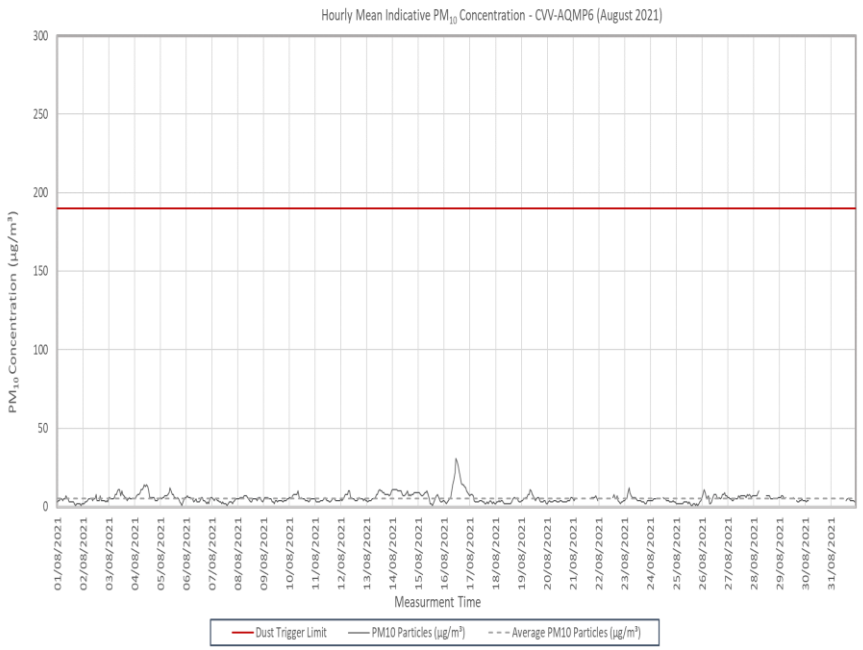
CVV-AQMP4



DGT-AQMP



CVV-AQMP5


Hourly Mean Indicative PM10 Concentration - CVV-AQMP6 (August 2021)
PM10 Concentration (µg/m³)
300
250
200
150
100
50
0
01/08/2021
02/08/2021
03/08/2021
04/08/2021
05/08/2021
06/08/2021
07/08/2021
08/08/2021
09/08/2021
10/08/2021
11/08/2021
12/08/2021
13/08/2021
14/08/2021
15/08/2021
16/08/2021
17/08/2021
18/08/2021
19/08/2021
20/08/2021
21/08/2021
22/08/2021
23/08/2021
24/08/2021
25/08/2021
26/08/2021
27/08/2021
28/08/2021
29/08/2021
30/08/2021
31/08/2021
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 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]
HS2-000020BNT	Lamp post on Pembroke Road	509678, 187214	30	30	24	23	20	16	No Data						24
HS2-000020BNU	Cowley Road sign post at junction with Hillingdon Road	505492, 183926	45	46	44	38	45	Tube Missing	32						42
HS2-000020BNV	High Street sign post at junction with Pembroke Road	509439, 187117	Tube Missing	40	37	36	36	Tube Missing	Tube Missing						37
HS2-000020BNW	Signpost on A4020 Uxbridge Road at junction with Long Lane	507365, 182687	40	48	39	46	43	Tube Missing	No Data						43
HS2-000020BPK	Lamp post in crescent off Swakeleys Road	506542, 186037	40	40	38	36	31	31	39						36
HS2-000020BPL	Warren Road sign post on corner of Swakeleys Road and Warren Road	506240, 185660	Tube Missing	39	37	30	34	Tube Missing	27						34
HS2-000020BPN	Lamp post on B467	506767, 186224	36	38	32	32	32	27	Tube Missing						33

[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	Tube Missing	Tube Missing	42	42	41	38	31						39
HS2-000020BQN	Lamp post on Park Road	506176, 185444	40	52	31	42	47	36	Tube Missing						42
HS2-000020BQP	Sign post on Long Lane	507614, 184663	38	39	36	41	39	32	26						36
HS2-000020BP8	Triplicate site at South Ruislip roadside automatic monitoring station	510858, 184916	39	40	33	33	32	27	No Data						34