HS2

June 2022

Air Quality and Dust Monitoring Monthly Report – June 2022

London Borough of Camden

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 Camden (LBC) during May 2022 and June 2022 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 The current phase of works commenced within the LBC during December 2017 and is expected to be completed by 2025. The current worksites, as presented in Appendix A, Figure 1 to Figure 5, include:

Skanska Costain Strabag Joint Venture (SCSjv)

- Adelaide Road Vent Shaft – piling operations and groundworks;
- Euston Scissor Cut – groundworks, piling operations and materials management;
- Euston Throat Retained Cut - groundworks, piling operations and materials management;
- Hampstead Road Bridge –Utilities diversion works; and
- Euston Cavern – piling operations.

Mace Dragados Joint Venture (MDjv)

Two Towers

- Backfill and Compact – Sub-basement;
- Sheet pile removal;
- Piazza Hoarding relocation & double gate relocation;
- Slab infilled; and
- Commencement of Canopy Works, erection of scaffold canopy.

Zone 5

- West retaining wall removal – Bay 1-5 Prep 1&2 removal 3 breakout;
- Install sheet piles;
- Delivery of TW Equipment; and
- Excavating, TW and removal of fuel tanks.

Maria Fidelis (Keltbray)

- Ground Source Heat pump installation – bentonite grouting for water replacement;
- Continuation of groundworks;
- FRC Foundation slab, switch room block and brick works; and
- Installation of attenuation tank.

ITR

- Cadent gas main & heritage wall trial hole finished 2/6;
- SW Drainage;
- ITP Piling & deep drainage on MH 4 shaft; and
- Comms & LV chamber and ducts.

TSS

- Finished final excavation stage 6;
- Couplers exposed;
- Completed Tunnel eye back-blinding;
- Earth mat installation – base and sump;
- Sump excavation and pour completion;
- Byrne Bros Mobilisation – crawler crane mob;
- Reinforcement delivered 1 load a day (rebar), waterproofing sump and base walls;
- Poured sump base;
- Tunnel eye waterproofed, installation of drainage and formwork to sump walls; and
- Demobilisation of Careys – excavator, cabins and crane.

Tunnels – TSS

- Waterproof tunnel eye and shaft base;
- Install sump (JGL) and remove plant and scaffold landing platforms;
- Breakthrough CI Rings Bay 4/986; and
- Bay 0 crown concrete and strike.

Main site/ NTH

- Piling platform installed and tested – installation support fluid slab. (Cemskan)

1.1.5 Twenty-one (21) 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 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.

1.1.7 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 One (1) dust trigger alert was recorded during the monitoring period (June 2022) and is reported in Appendix B, Table 2.

1.1.9 Data capture was below 90% for multiple monitors in June 2022 due to monitor faults (subsequently resolved) and ongoing power supply issues.

1.1.10 Diffusion tube monitoring of Nitrogen Dioxide (NO_2) is undertaken at sixty-four (64) locations around highways within the LBC as part of the management of air quality where significant effects June occur as a result of the scheme.

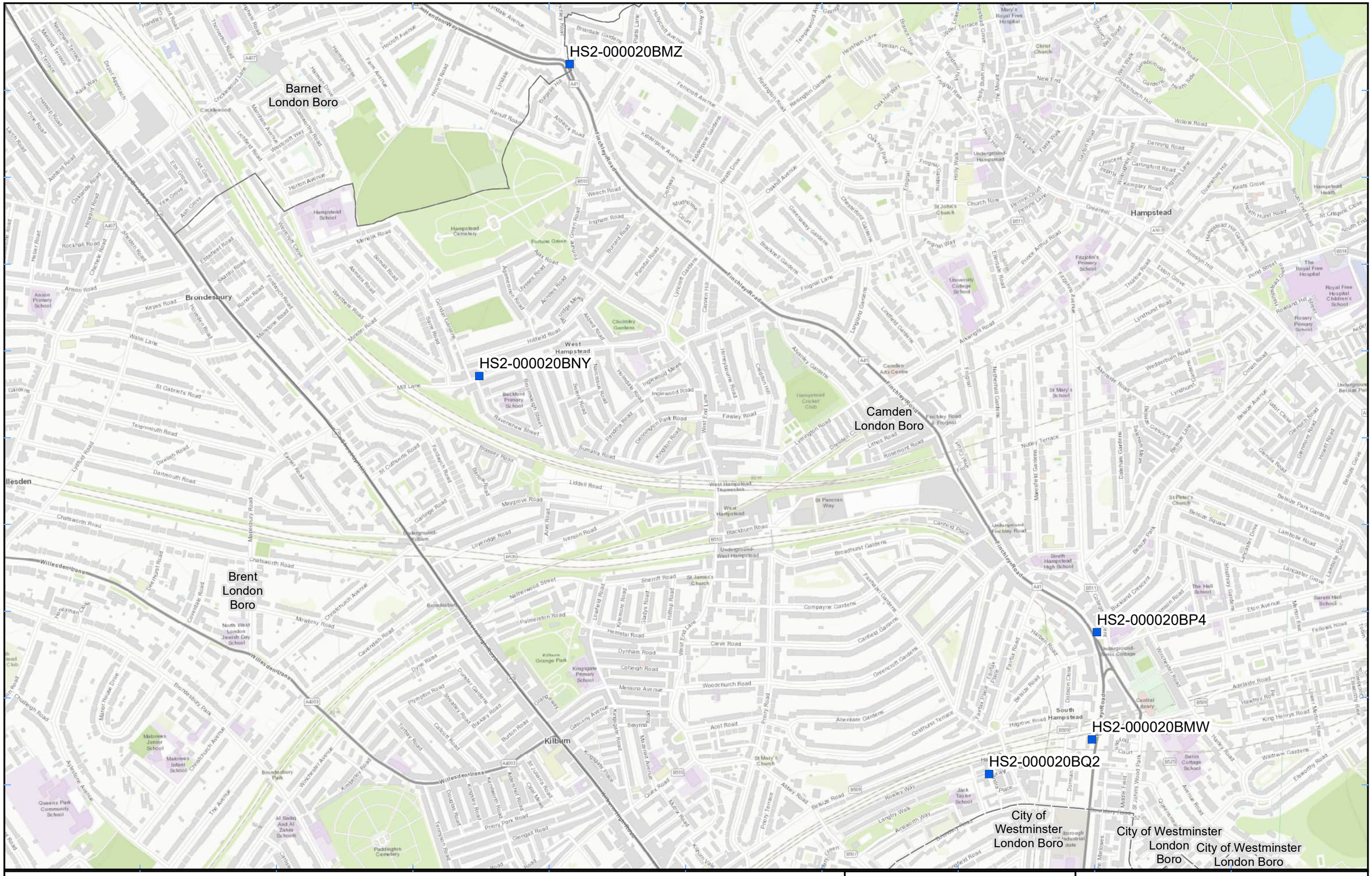
1.1.11 Diffusion tube monitoring results are as provided from the laboratory analysis, and therefore still require various analysis and adjustments to be undertaken. Final corrected results will be presented and described in the annual report. However, based on the results to date, no unexpected values 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 2022 running mean.

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

Appendix A – Worksites and Monitoring Locations

Figure 1 to Figure 5: Worksites and monitoring locations within the LBC



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 LBC (Sheet 1)

London Borough of Camden

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

Scale at A3: 1:10,000

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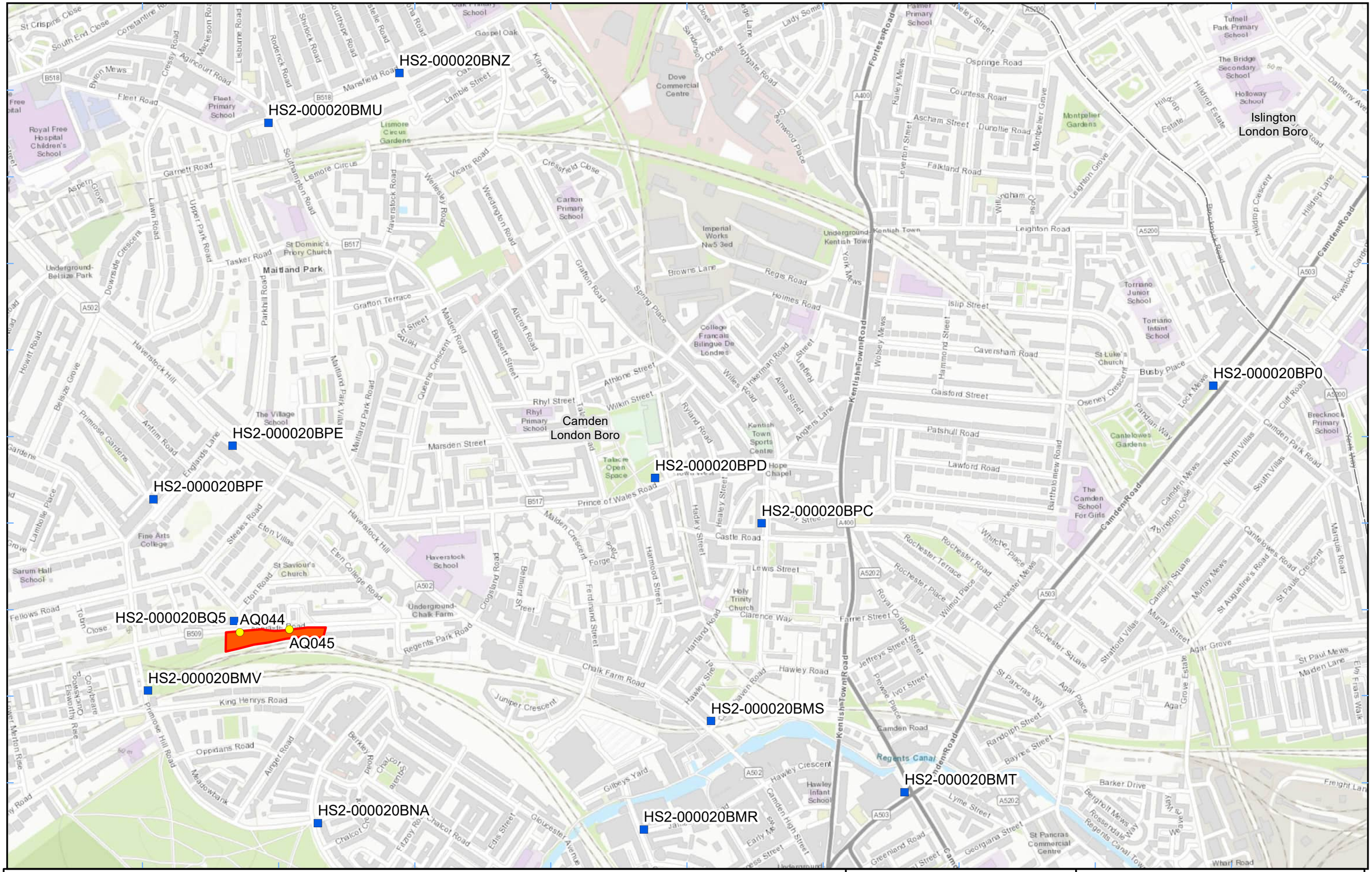
Metres

Doc Number:

Date: 26/04/22



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 LBC (Sheet 2)

London Borough of Camden

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

Scale at A3: 1:7,000

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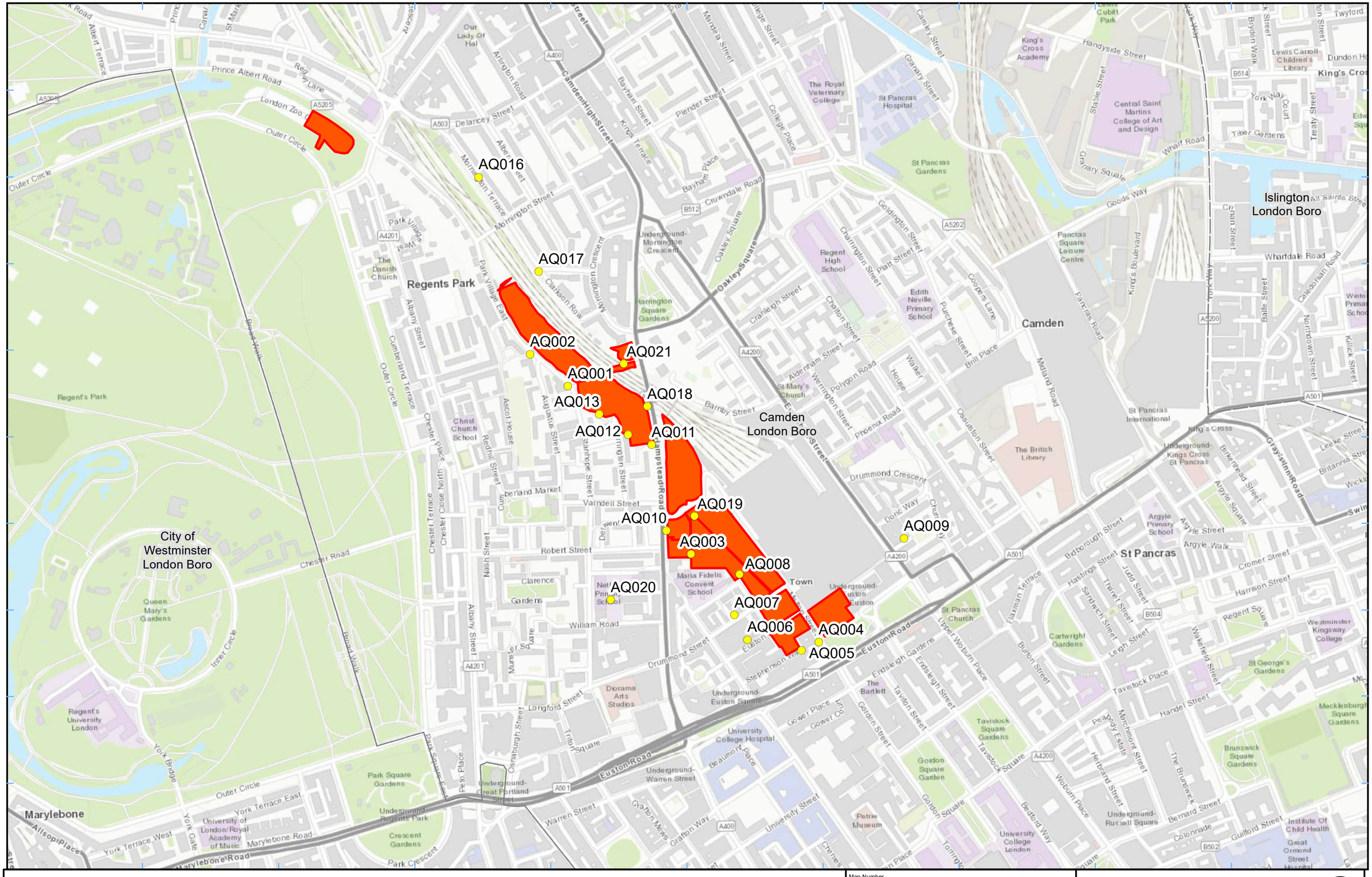
Doc Number:

Date: 26/04/22



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 LBC (Sheet 3)

London Borough of Camden

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

Scale at A3: 1:7,000

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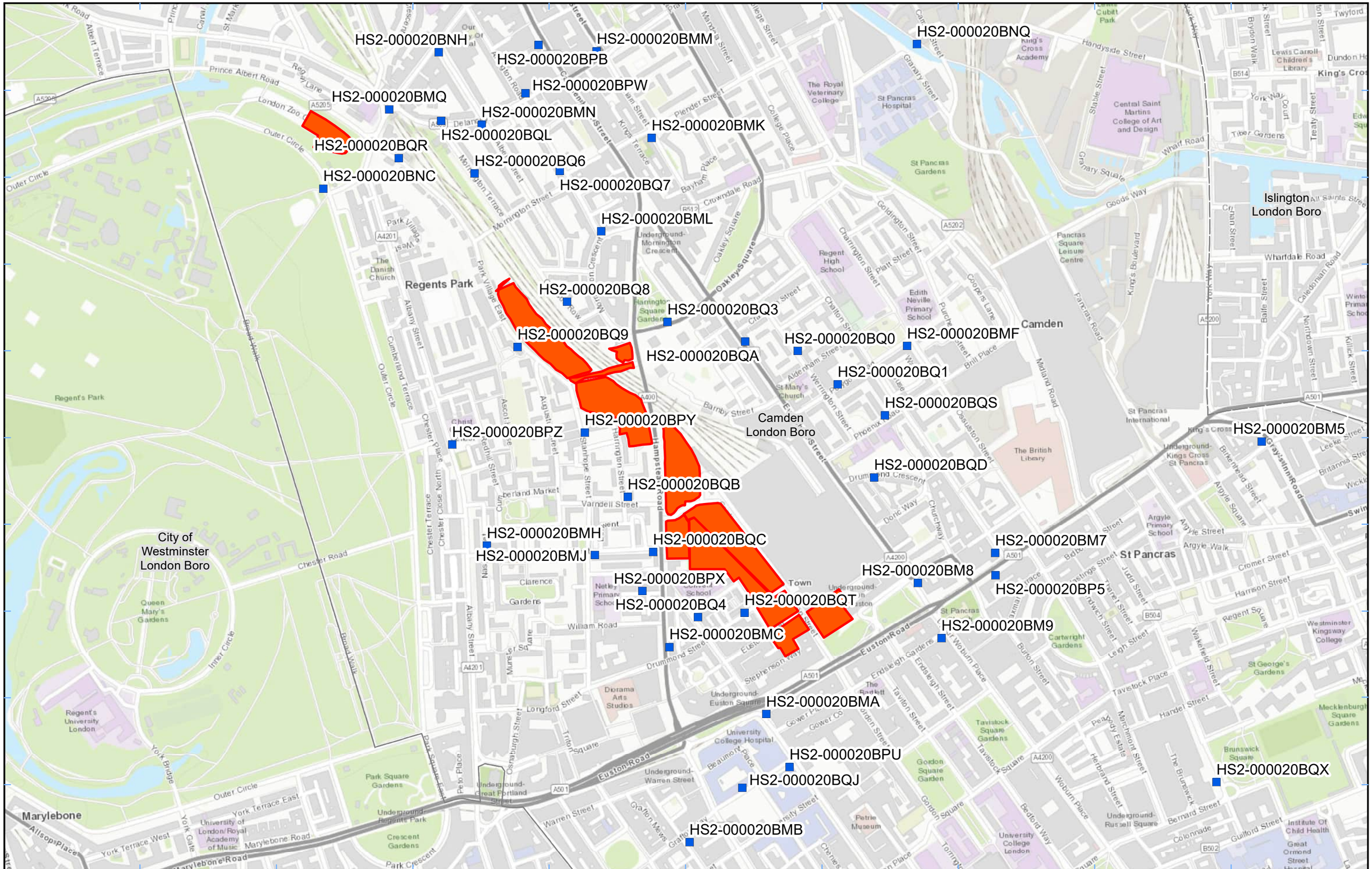
Metres

Doc Number:

Date: 28/04/22



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 LBC (Sheet 4)

London Borough of Camden

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

Scale at A3: 1:7,000

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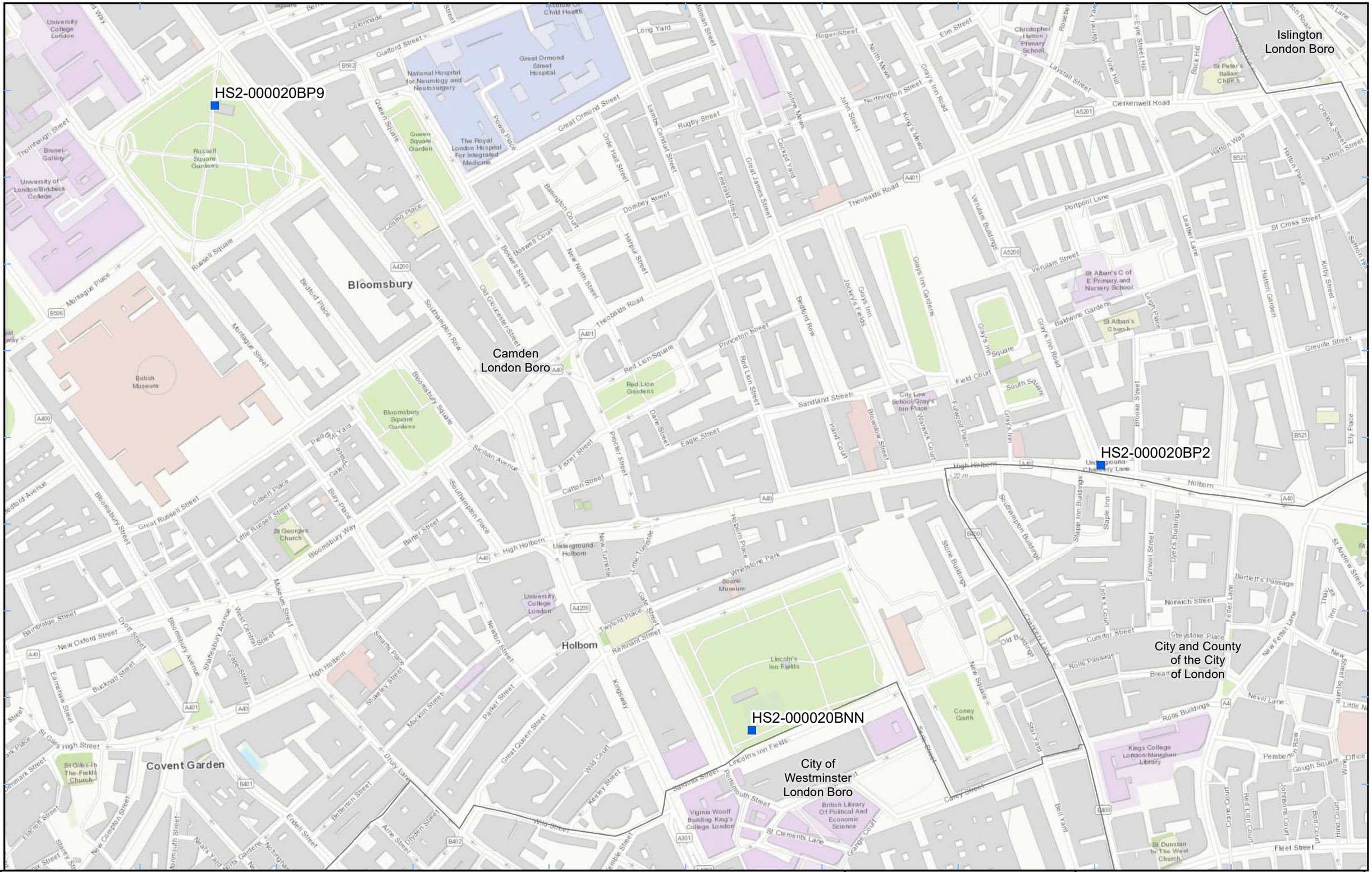
Doc Number:

Date: 28/04/22



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 LBC (Sheet 5)

London Borough of Camden

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

Scale at A3: 1:4,000

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Doc Number:

Date: 28/04/22

Appendix B – Dust Monitoring Results

Table 1: Dust monitoring locations and June 2022 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 (%)
AQ001	529016, 183049	Junction of Park Village East, Stanhope Street and Granby Terrace	M	Yes	N	10.3	3.9	20.7	0	8.2
AQ002	528924, 183130	Park Village East	M	Yes	N	11.6	1.2	42.0	0	100.0
AQ003	529273, 182698	St James' Gardens	M	Yes	N/A	5.1	0.5	16.3	0	100.0
AQ004	529533, 182519	Melton Street	H	Yes	N/A	7.4	0.7	101.5	0	100.0
AQ005	529498, 182502	Stephenson Way	H	No	N/A	-	-	-	-	-
AQ006	529388, 182524	Euston Street	H	Yes	N/A	14.3	1.5	57.6	0	100.0
AQ007	529361, 182574	Drummond Street	H	Yes	N/A	10.6	1.7	31.1	0	100.0
AQ008	529372, 182657	Cobourg Street	H	Yes	N/A	14.6	1.6	105.8	0	100.0
AQ009	529707, 182730	Eversholt Street	H	Yes	N/A	10.7	0.9	35.4	0	100.0
AQ010	529223, 182746	Hampstead Road South	M	Yes	N/A	11.6	1.1	44.3	0	100.0
AQ011	529176, 182922	Hampstead Road	M	Yes	N	13.8	1.6	173.3	0	100.0

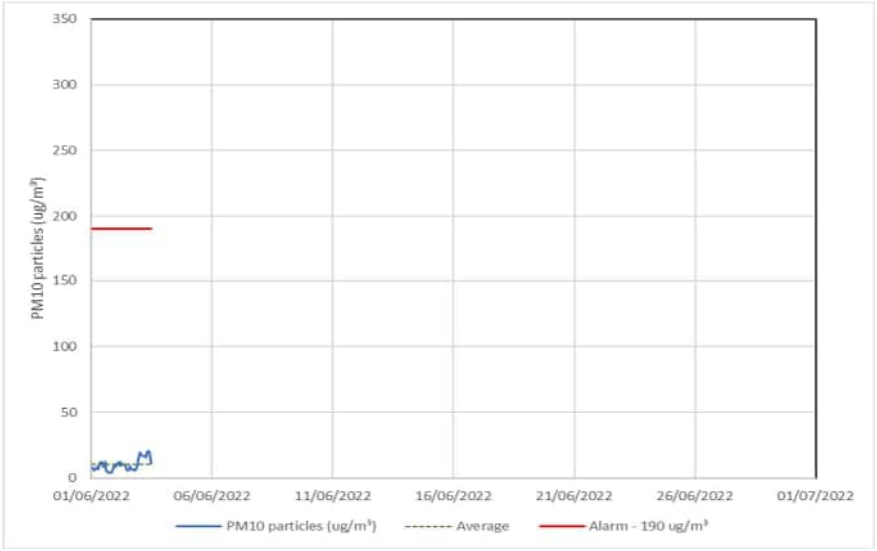
Monitoring site ID	Coordinates (X,Y)	Location description	Dust risk rating for site	Monitoring site active during period	Change to site since previous period report	Mean 1-hour PM_{10} concentration ($\mu g/m^3$)	Minimum 1-hour PM_{10} concentration ($\mu g/m^3$)	Maximum 1-hour PM_{10} concentration ($\mu g/m^3$)	Number of 1- hour periods exceeding trigger level of 190 $\mu g/m^3$	Data capture (%)
AQ012	529144, 182941	Rear of Coniston House	M	Yes	N	16.3	1.5	85.8	0	99.3
AQ013	529066, 182990	Regents Park Estate	M	Yes	N	9.8	0.8	330.2	1	100.0
AQ016	528820, 183498	Mornington Terrace North	M	Yes	N	14.3	1.7	43.9	0	100.0
AQ017	528962, 183274	Mornington Terrace South	M	Yes	N	-	-	-	-	-
AQ018	529192, 183071	Hampstead Road North	M	Yes	N	11.4	1.2	41.3	0	100.0
AQ019	528689 , 183500	Park Village East (North)	M	Yes	N	10.4	1.2	56.2	0	100.0
AQ020	529109, 182605	Netley School	N/A	Yes	N/A	6.9	0.7	26.9	0	100.0
AQ021	529136, 183086	Site compound at the Junction of Hampstead Road & Granby Terrace Bridge	M	Yes	N	12.9	1.4	85.2	0	99.9
AQ044	527725 , 184369	Adelaide Road 1	M	Yes	N	9.9	3.2	63.9	0	8.3
AQ045	527826 , 184375	Adelaide Road 2	M	Yes	N	10.3	1.0	84.5	0	99.0

Table 2: Summary of exceedances of trigger level in June 2022

Monitoring site ID	Period exceeding trigger level	Investigation	Outcomes / Resolution / Remedial measures implemented
AQ013	13/06/2022 11:00-12:00; 330.2 µg/m^3	At the time of the isolated trigger alerts from dust monitor (AQ013), which is located on the south-western boundary of the Euston Throat Retained Cut (ETRC) there was no works activities in the vicinity of the monitor. Wider activities involved steel fixing in the concrete cutting, not dusty activity though. Also, cabling activities to the nearby generators, again not dusty. The haul road beyond was visibly damped down as regularly undertaken throughout each day and the nearby pathways swept and clear of debris It is considered the spike may have been caused by loose debris/particles or reduced flow due to low power within the monitor's inlet and not associated with site activities.	Monitored readings were low before and after the isolated spike. Dust suppression will continue to be an integral part of general site and housekeeping activities.

Figure 6: Construction dust 1-hour mean indicative PM_{10} concentration for dust monitors

AQ001



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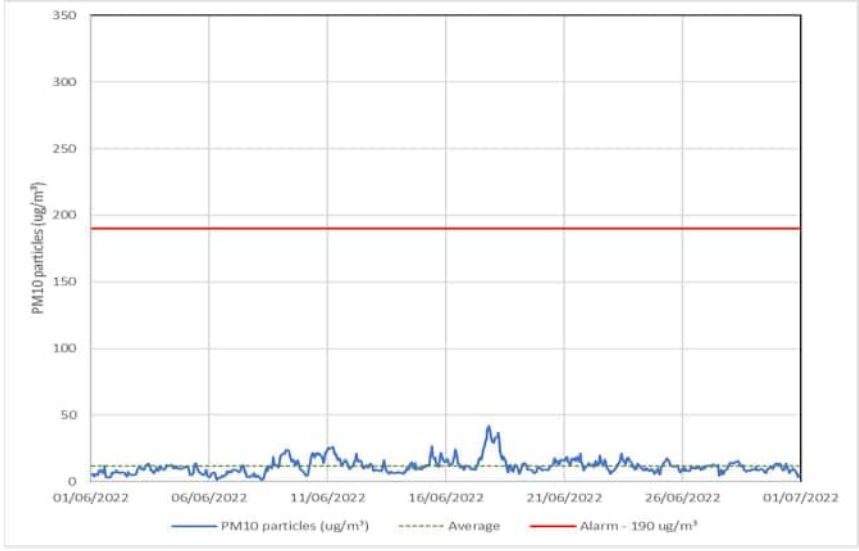

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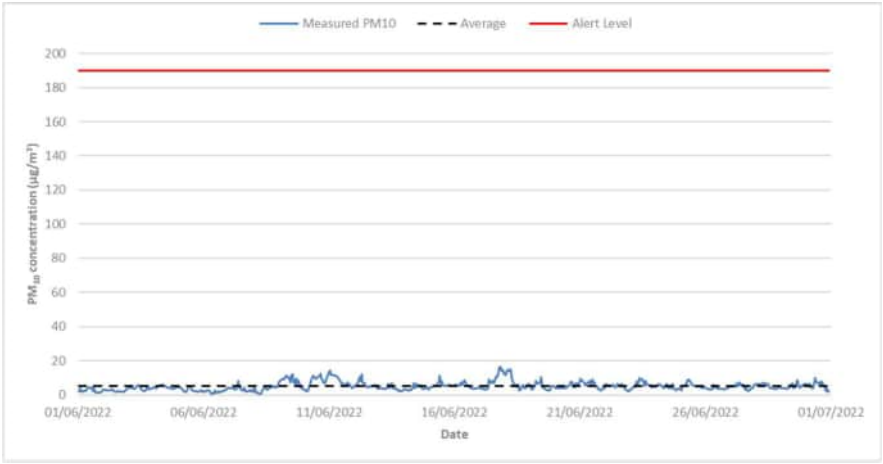

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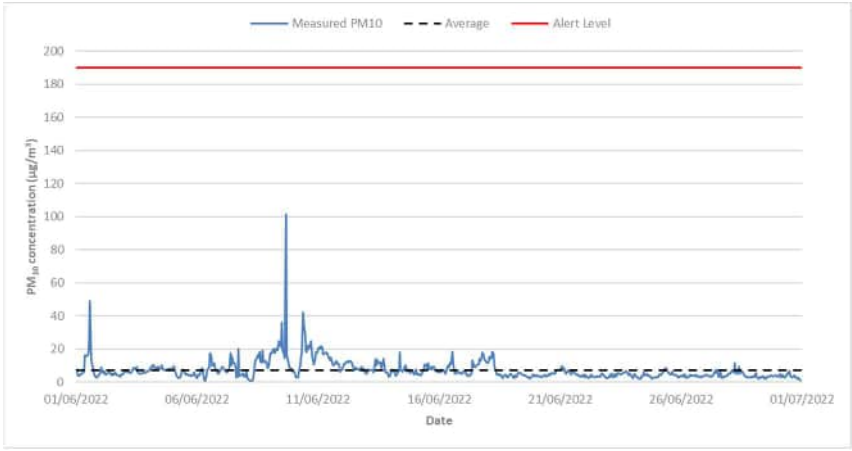

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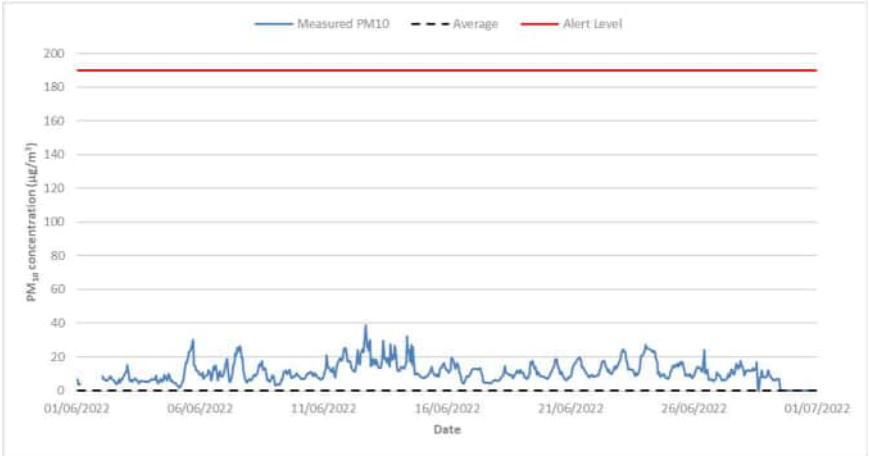

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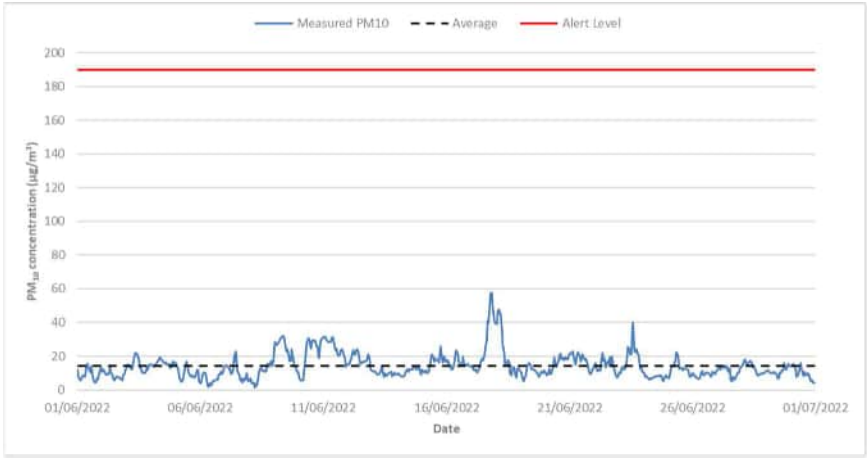

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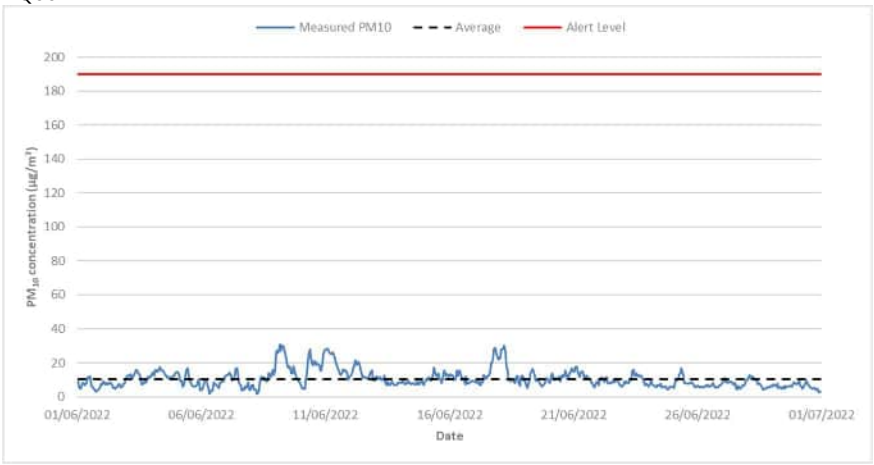

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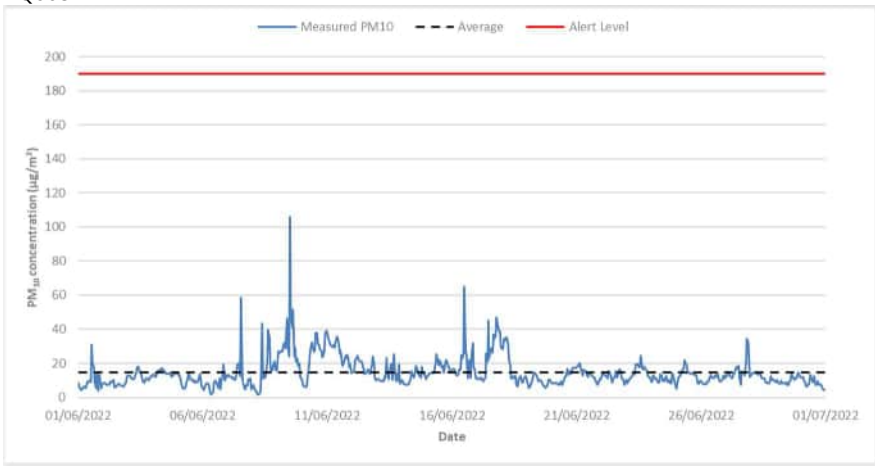

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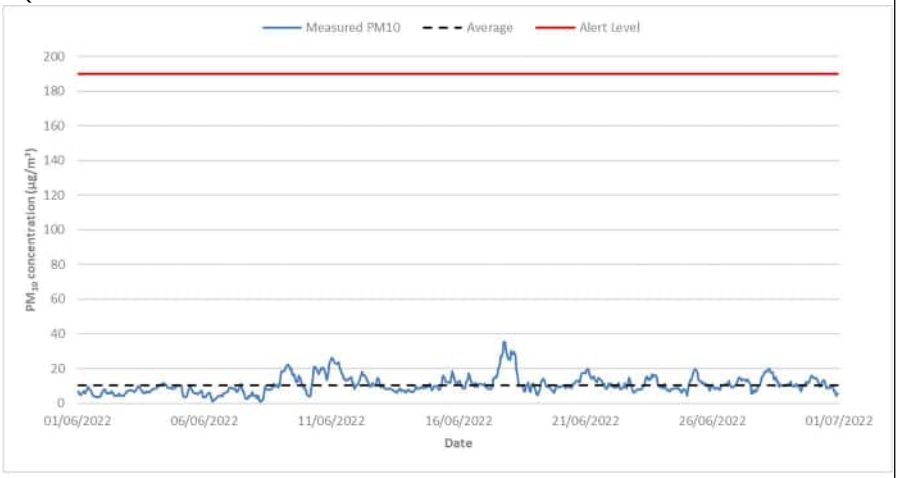

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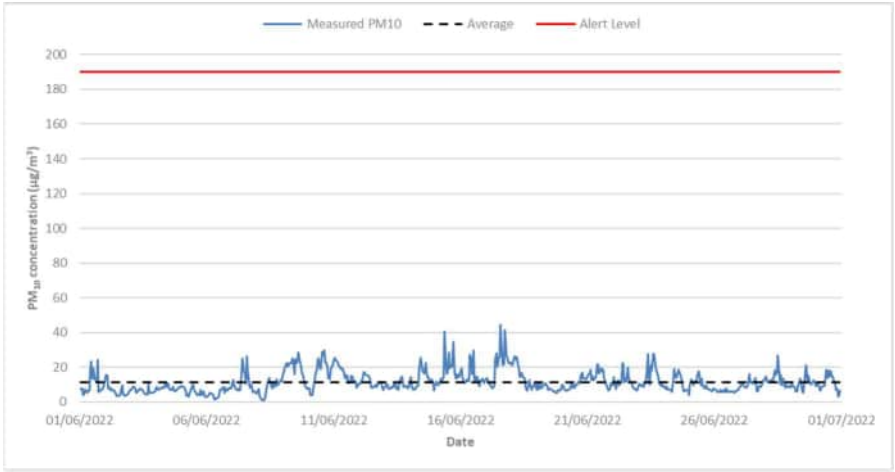

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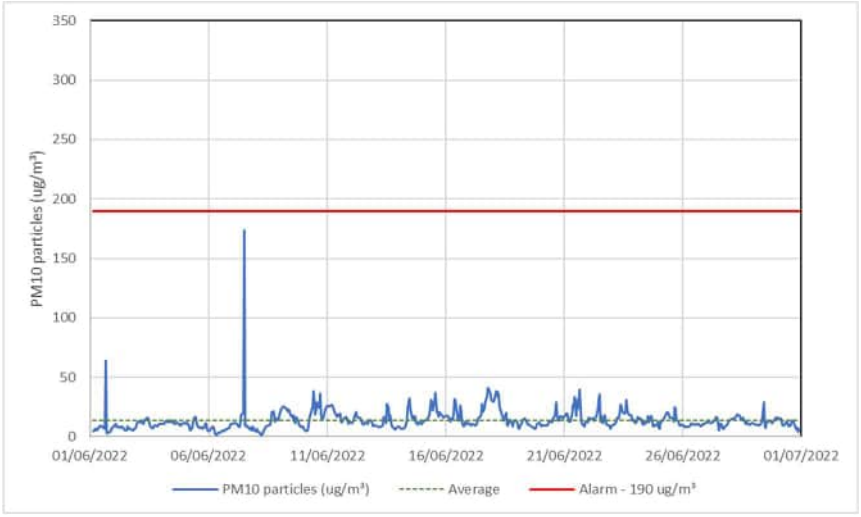

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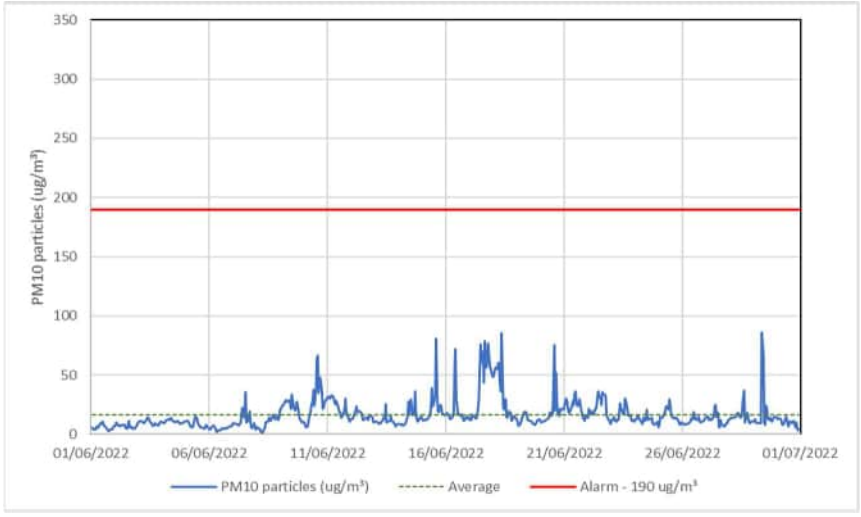

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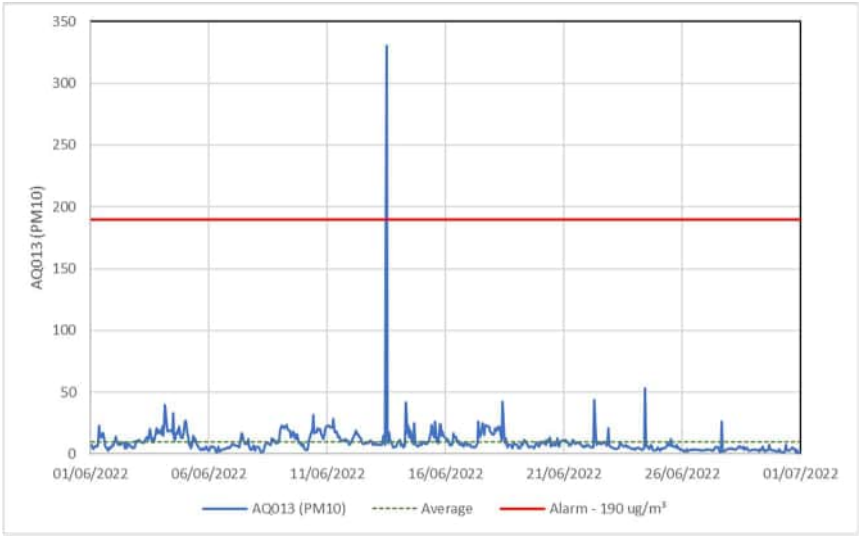

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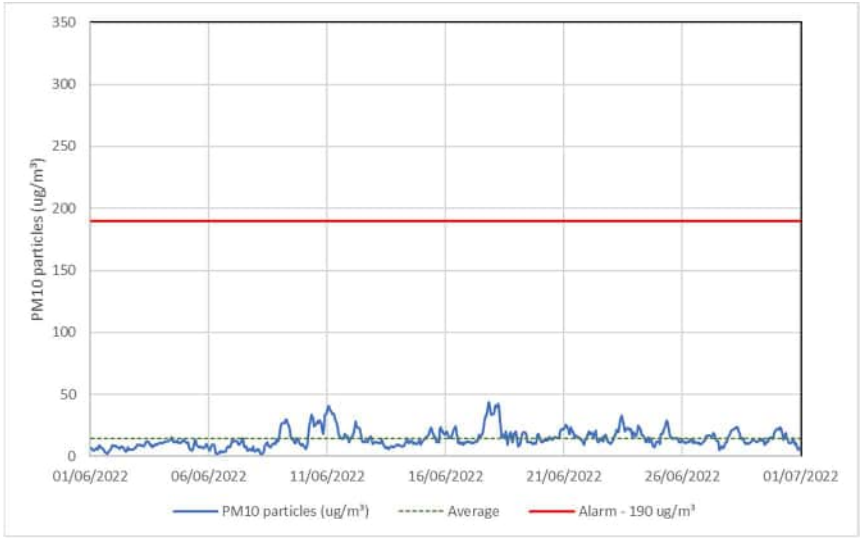

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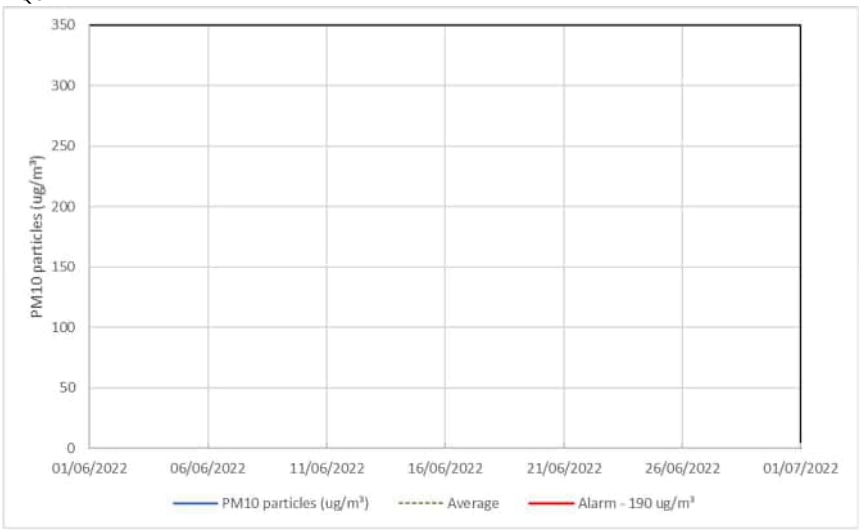

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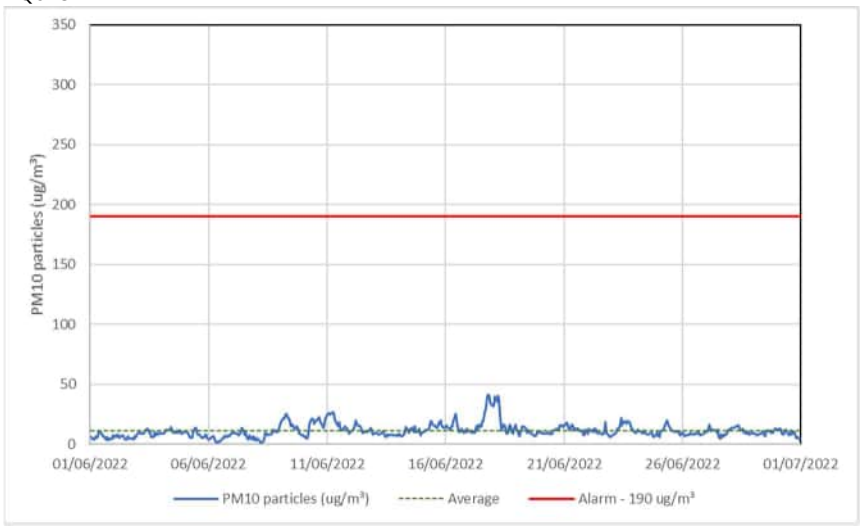

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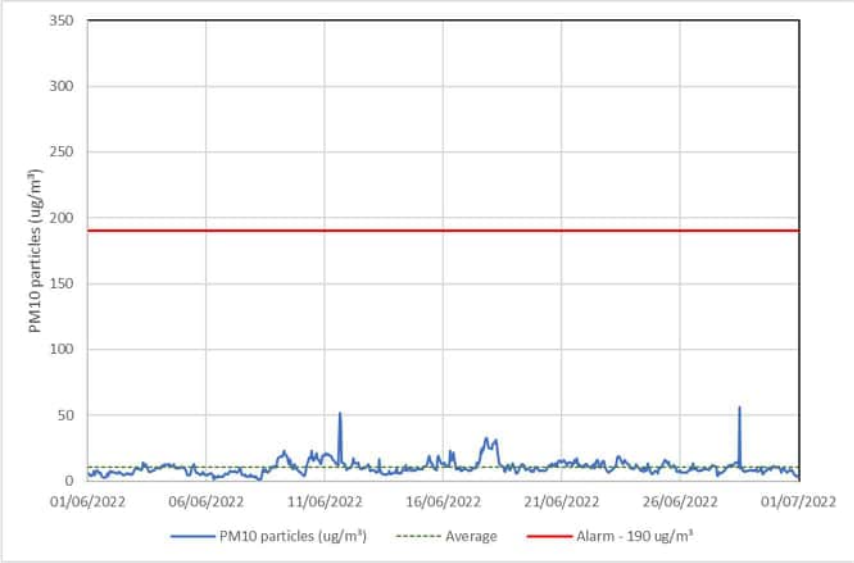

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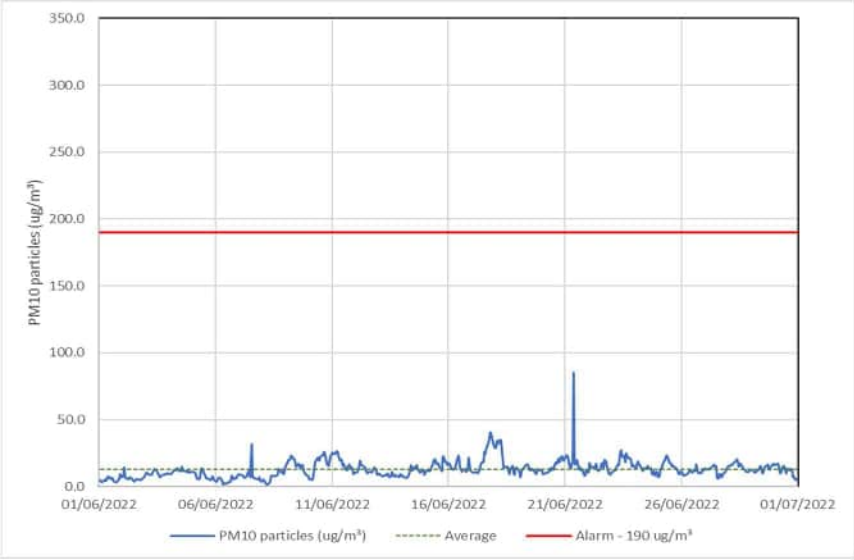

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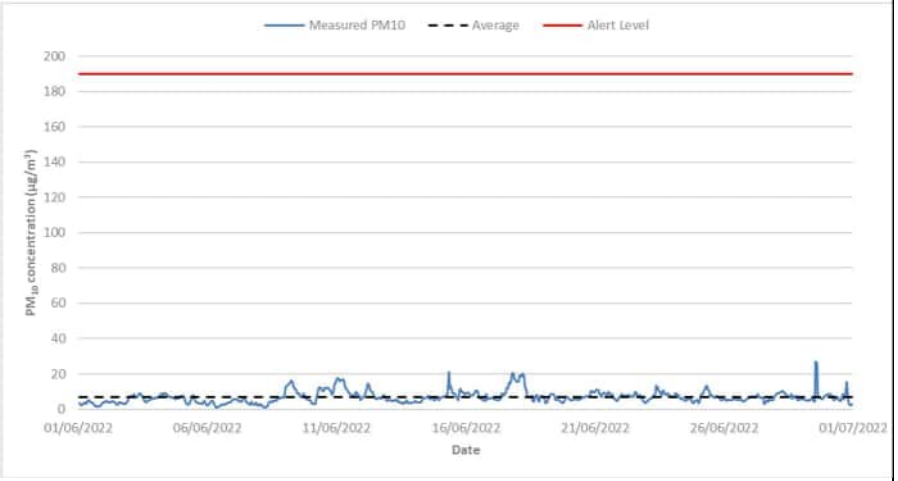

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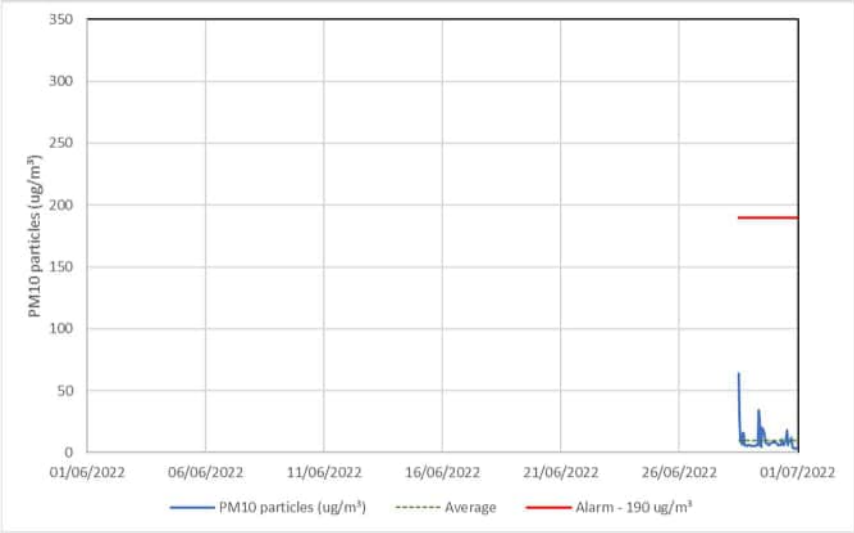

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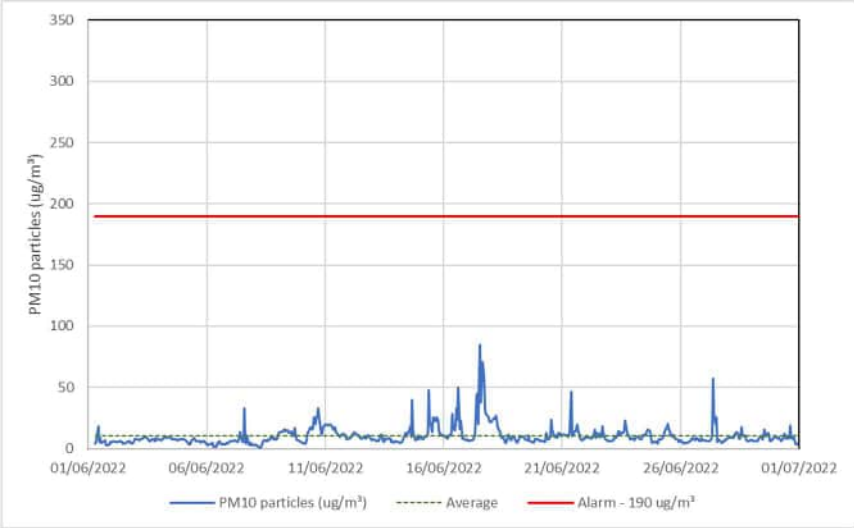
350
300
250
200
150
100
50
0
PM10 particles (ug/m³)
01/06/2022
06/06/2022
11/06/2022
16/06/2022
21/06/2022
26/06/2022
01/07/2022
PM10 particles (ug/m³)
Average
Alarm - 190 ug/m³

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 2022 (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]
HS2-000020BM5	Junction of St Chad's Street and Grays Inn Road	530436, 182929	55	40	48	42	34								44
HS2-000020BM7	Chalton Street	529894, 182702	Tube Missing	Tube Missing	62	46	41								50
HS2-000020BM8	Junction of Euston Square and Grafton Place	529737, 182641	Tube Missing	51	59	49	51								53
HS2-000020BM9	Junction of Endsleigh Gardens and Upper Woburn Place	529785, 182529	61	44	58	47	38								50
HS2-000020BMA	Junction of Euston Road and Gower Street	529429, 182375	Tube Missing	44	57	43	41								46
HS2-000020BMB	Whitfield Street	529273, 182114	51	37	50	35	28								40
HS2-000020BMC	Hampstead Road	529232, 182511	70	52	71	55	52								60
HS2-000020BMF	Junction of Polygon Road and Ossulston Street	529715, 183123	42	27	55	28	25								36
HS2-000020BMH	Nash Street	528861, 182717	46	31	45	28	26								35
HS2-000020BMJ	Junction on Robert Street and Stanhope Street	529080, 182698	41	31	47	33	28								36

[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]
HS2-000020BMK	Junction of Plender Street and Bayham Street	529196, 183546	56	Tube Missing	54	37	36								46
HS2-000020BML	Junction of Arlington Road and Mornington Crescent	529093, 183356	48	30	44	28	23								35
HS2-000020BMM	Junction of Bayham Street and Pratt Street	529084, 183722	Tube Missing	49	52	37	44								46
HS2-000020BMN	Junction of Delancey Street and Albert Street	528850, 183573	53	34	43	32	30								38
HS2-000020BMQ	Junction of Parkway and Delancey Street	528662, 183604	51	30	60	40	33								43
HS2-000020BMR	Junction of Oval Road and Jamestown Road	528548, 183967	49	31	43	29	24								35
HS2-000020BMS	Junction of Chalk Farm Road and Castlehaven Road	528685, 184188	50	41	50	38	36								43
HS2-000020BMT	Junction of Camden Road and Camden Street	529079, 184043	60	Tube Missing	53	44	35								48
HS2-000020BMU	Junction of Southampton Road and Fleet Road	527783, 185407	53	37	53	37	32								42
HS2-000020BMV	Primrose Hill Road	527538, 184250	57	Tube Missing	42	28	25								38
HS2-000020BMW	Junction of Finchley Road and Hilgrove Road	526619, 184081	66	52	64	48	41								54
HS2-000020BMZ	Junction of Finchley Road and Hendon Way	525102, 186042	88	62	83	59	50								68

Monitoring Site ID	Location description	Coordinates (X, Y)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean[1]
HS2-000020BNA	Junction of Regent's Park Road and Rothwell Street	527884, 183980	48	33	38	Tube Missing	21								35
HS2-000020BNC	Junction of Outer Circle and Gloucester Gate	528528, 183443	38	19	39	25	18								28
HS2-000020BNH	Junction of Parkway and Albert Street	528763, 183720	50	Tube Missing	Tube Missing	Tube Missing	24								37
HS2-000020BNN	Lincoln's Inn Fields	530744, 181308	47	34	39	26	25								34
HS2-000020BNQ	Camley Street	529735, 183737	62	Tube Missing	42	32	30								42
HS2-000020BNY	Junction of Mill Lane and Hillfield Road	524839, 185136	60	39	43	34	27								40
HS2-000020BNZ	Mansfield Road	528050, 185508	50	36	37	26	27								35
HS2-000020BP0	Junction of Camden Road and Torriano Avenue	529708, 184871	63	Tube Missing	56	42	38								49
HS2-000020BP2	Junction of Grays Inn Road and Holborn	531149, 181616	59	40	48	33	33								42
HS2-000020BPB	Camden High Street	528966, 183735	78	Tube Missing	65	50	49								60
HS2-000020BPC	Castlehaven Road	528788, 184591	52	Tube Missing	39	27	24								35
HS2-000020BPD	Prince of Wales Road	528571, 184683	46	32	37	25	19								32
HS2-000020BPE	Haverstock Hill	527710, 184749	55	41	39	28	32								39
HS2-000020BPF	Junction of Primrose Gardens and England's Lane	527549, 184640	54	38	49	31	26								40

Monitoring Site ID	Location description	Coordinates (X, Y)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean[1]
HS2-000020BPU	Junction of Gower Street and Grafton Way	529476, 182267	Tube Missing	37	49	38	35								40
HS2-000020BPW	Junction of Delancey Street and Arlington Road	528939, 183637	53	34	49	36	29								40
HS2-000020BPX	Netley Street	529177, 182625	48	30	50	34	26								37
HS2-000020BPY	Stanhope Street	529060, 182947	47	Tube Missing	46	31	25								37
HS2-000020BPZ	Albany Street	528790, 182923	31	29	45	31	26								32
HS2-000020BQ0	Werrington Street	529493, 183113	44	28	40	26	19								31
HS2-000020BQ1	Polygon Road	529574, 183045	44	31	42	28	Tube Missing								36
HS2-000020BQ2	Alexandra Place	526320, 183980	45	30	42	26	22								33
HS2-000020BQ3	Harrington Square	529228, 183172	55	Tube Missing	60	41	36								48
HS2-000020BQ4	Junction of North Gower Street and Starcross Street	529290, 182572	52	25	52	33	26								37
HS2-000020BQ5	Adelaide Road	527713, 184392	53	41	48	30	31								41
HS2-000020BQ6	Mornington Terrace	528836, 183474	47	30	42	25	22								33
HS2-000020BQ7	Arlington Road	529009, 183479	46	28	38	25	22								32
HS2-000020BQ8	Clarkson Row	529024, 183213	48	33	44	27	25								35
HS2-000020BQ9	Park Village East	528923, 183121	Tube Missing	28	44	31	23								32
HS2-000020BQA	Eversholt Street	529386, 183132	50	52	60	39	40								48

Monitoring Site ID	Location description	Coordinates (X, Y)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean[1]
HS2-000020BQB	Junction of Harrington Street and Varndell Street	529147, 182816	45	27	42	32	22								34
HS2-000020BQC	Junction of Robert Street and Hampstead Road	529199, 182704	51	30	53	37	27								39
HS2-000020BQD	Drummond Crescent	529648, 182856	52	35	51	34	32								41
HS2-000020BQJ	Grafton Way	529380, 182225	Tube Missing	47	50	43	44								46
HS2-000020BQL	Delancey Street	528768, 183581	60	37	57	43	33								46
HS2-000020BQR	Lamp post on Park Village East	528682, 183505	47	29	47	27	23								35
HS2-000020BQS	Opposite Maria fidelis school on Phoenix Road	529670, 182982	39	28	45	27	24								33
HS2-000020BQT	Drummond Street	529385, 182581	50	32	52	33	29								39
HS2-000020BQX	Lamp post on Brunswick Square	530344, 182236	56	37	45	30	31								40
HS2-000020BP4	Triplicate site on Finchley Road next to Swiss Cottage kerbside automatic monitoring station	526633, 184392	74	50	76	49	41								58
HS2-000020BP5	Triplicate site next to the Euston Road roadside automatic monitoring stations	529895, 182657	Tube Missing	Tube Missing	67	Tube Missing	Tube Missing								67

Monitoring Site ID	Location description	Coordinates (X, Y)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean[1]
HS2-000020BP9	Triplicate site in Russell Square next to Bloomsbury urban background automatic monitoring station	530120, 182034	54	36	42	34	27								39