High Speed Rail (London-West Midlands)

Annual Air Quality Report 2016

December 2017

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Department for Transport

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Contents

Contents

List of tables

Non-Technical Summary

The High Speed Two project (HS2) is the Government's proposal for a new, high speed, north-south railway. HS2 Phase One will connect London with Birmingham and the West Midlands; Phase Two will extend the route to Manchester, Leeds and beyond.

In November 2013, HS2 Ltd. deposited a hybrid Bill with Parliament to seek powers for the construction and operation of Phase One of HS2 (referred to as 'the Proposed Scheme'). The hybrid Bill, including an Environmental Impact Assessment, the results of which were reported in an Environmental Statement submitted alongside the Bill.

The HS2 Air Quality Strategy and HS2 Phase One Information Paper E31: Air Quality summarises the air quality impacts identified in the Environmental Statement, as amended, and set out HS2 Ltd.'s approach for managing air quality, which includes the publication of an annual review of air quality.

This report is the first of HS2 Ltd.'s annual reviews of air quality. This first annual report is focused on reporting monitoring data for air quality around highways and covers the 2016 period. The report makes reference to the air pollutants and areas where significant effects were identified within the Environmental Statement. These significant effects are confined to a limited number of roads in the Greater London area and the significant effects are for the pollutants nitrogen dioxide and particulate matter. Therefore the monitoring data discussed in this report only covers the Greater London area and the pollutants nitrogen dioxide and particulate matter.

HS2 Ltd. commenced a baseline air quality survey at the end of June 2016. This survey uses diffusion tubes to monitor nitrogen dioxide. The monitoring and reporting of this survey has been undertaken following the Department for Environment, Food and Rural Affairs (Defra) Local Air Quality Management best practice guidance. The results from this survey for 2016 are presented in table format in Appendix D and shown on maps, with monitoring sites colour coded based on the measured concentration, in Appendix F. There was not identified to be a need for HS2 to undertaken additional supplementary monitoring for particulate matter around highways. Particulate matter monitoring around highways is available from sites operated by Defra or local authorities and a reference to the relevant report where this data is available is given. However, HS2 Ltd. will be undertaking surveys of indicative particulate matter for the purposes of management of construction dust.

The HS2 Ltd. air quality monitoring survey is intended to supplement air quality monitoring that is being undertaken by other parties such as Defra, local authorities and in some areas communities and academic institutions. Data from air quality monitoring surveys undertaken by other parties is not reproduced within this report.

This report provides a summary of the significant effects identified in the Environmental Statement, as amended, and a comparison of 2016 monitoring data with the predictions from the air quality modelling undertaken for the Environmental Statement.

The Proposed Scheme is currently in the early stages of the construction period. The year 2016 is considered a baseline period, but HS2 Ltd. have already made commitments for measures to reduce emissions generated by construction activities. The measures include:

- Construction vehicle emission standards requirements and methods to manage their use via traffic management plans;

- Non road mobile machinery emission standard requirements; and
- Dust mitigation measures.

The year 2017 will also provide further baseline data due to the limited construction activities occurring during that year. Progress and impact of measures to improve air quality will therefore be reported in future annual reports.

This report is a revision of that published in January 2018 following a review of all diffusion tube monitoring location categories (i.e. kerbside, roadside, urban background).

1 Introduction

1.1.1 The High Speed Two project (HS2) is the Government's proposal for a new, high speed, north-south railway. HS2 Phase One will connect London with Birmingham and the West Midlands; Phase Two will extend the route to Manchester, Leeds and beyond.

1.1.2 The high speed railway project is in 3 phases:

- Phase 1 London to the West Midlands;
- Phase 2A West Midlands to Crewe; and
- Phase 2B West Midlands to Leeds, Crewe to Manchester.

1.1.3 In November 2013, HS2 Ltd. deposited a hybrid Bill[1] with Parliament to seek powers for the construction and operation of Phase One of HS2 (referred to as 'the Proposed Scheme'). The Bill, including an Environmental Impact Assessment (EIA). The results of the EIA were reported in an Environmental Statement (ES) which was submitted alongside the Bill. The Secretary of State also published Environmental Minimum Requirements (EMRs), which set out the environmental and sustainability commitments that will be observed in the construction of the Proposed Scheme.

1.1.4 The ES prepared as part of the Bill included an assessment of the impacts of the Proposed Scheme on air quality during construction and operation. The HS2 Air Quality Strategy and HS2 Phase One Information Paper E31: Air Quality summarised the impacts identified in the ES.

1.1.5 The key area of impacts identified was highway construction traffic and highway interventions which will cause temporary significant effects for local air quality. These significant effects are confined to a limited number of roads in the Greater London area. These effects are mostly from changes in nitrogen dioxide concentrations, and to a much less extent from changes in PM10. This is largely due to the existing concentrations of air pollutants already being above government air quality standards in London.

1.2 Management of air quality

1.2.1 The HS2 Air Quality Strategy and HS2 Phase One Information Paper E31: Air Quality set out HS2 Ltd.'s approach for managing air quality.

1.2.2 In order to manage significant impacts related to highway traffic changes and interventions, HS2 Ltd. committed to putting in place a process to manage those impacts through measurement and regular assessments of air quality during the construction of the Proposed Scheme. Where significant effects are predicted, action plans will be put in place with the objective of removing those significant effects.

1.2.3 The management process is modelled on Defra's Local Air Quality Management (for which the statutory duties of local authorities and London boroughs are set out in Part IV of the

[1] The High Speed Rail (London – West Midlands) Bill, hereafter 'the Bill'.

Environment Act 1995), and the periodic reviews and action plans are envisaged as being similar to those produced in that process.

1.2.4 The management process comprises: measure – review – action plan. Baseline (pre-works) air quality monitoring is being undertaken in locations where potential significant effects have been predicted. Forecast baseline and 'with HS2 construction' traffic numbers used in the air quality modelling for the ES will be reviewed and updated in these locations, if necessary.

1.2.5 The baseline measurements will be reviewed and an air quality assessment produced at an appropriate stage to determine whether significant effects are still predicted. Where significant effects are still predicted, the air quality monitoring will be continued, and an air quality action plan be developed, with the objective of removing the significant effects as soon and as far as practicable.

1.3 Purpose of this report

1.3.1 This report is the first of HS2 Ltd.'s annual reviews of air quality. This report covers the 2016 calendar year, which is considered to be a baseline year, prior to the start of the enabling works and main works[2].

1.3.2 This first annual report is focused on reporting monitoring data for air quality around highways. The air pollutants considered in this report are nitrogen dioxide (NO_2) and particulate matter. The area of focus is where significant effects were identified within the ES. These areas were within Greater London and as such the reporting of monitoring data is for Greater London only. For other areas along the Phase One route, data from Defra and local authority monitoring surveys provides an indication of baseline. This data is not reproduced in this report and reference should be made to the relevant Defra and local authority publications and websites.

1.4 Summary of significant effects identified in the environmental statement

1.4.1 For the ES, calculations of changes in concentrations of nitrogen dioxide (NO_2) and particulate matter (PM_{10}) was calculated. $PM_{2.5}$ concentrations were considered but not calculated or reported in the ES. The ES predicted that changes in traffic emissions during construction of the Proposed Scheme would give rise to significant effects from changes in annual mean NO_2 concentrations around certain construction traffic routes in Greater London. Significant effects from changes in the 24-hour daily mean PM_{10} concentrations were also predicted, but this was limited to the area in the immediate vicinity of Euston Road.

1.4.2 For the ES, best practice guidance published by the Institute of Air Quality was used to determine if there were significant for air quality. This guidance determines the significant effect based on the change in pollutant concentration due to the Proposed Scheme relative to pollutant concentration for the existing situation. Where the existing air quality is already above government air quality standards, a relatively smaller change in pollution concentration

[2] In some areas, survey work and ground investigation works were undertaken during 2016. In addition in the London Borough of Camden construction of housing to replace that which will be lost due to land required by HS2 was under construction during 2016.

is considered to be a significant effect, than where existing air quality is below government air quality standards.

1.4.3 Where an effect on air quality is described as significant at a particular location, this is with respect to the air quality legislation, and does not denote a significant effect on human health. Much larger changes in air quality than are predicted as a consequence of the Proposed Scheme would be needed to cause significant impacts on health at the level of an individual person.

1.4.4 A summary of the number of receptors with significant effects predicted in the ES is presented in Appendix A.

2 Air quality monitoring data and comparison with air quality objectives and national compliance

2.1 Pollutants

2.1.1 The pollutants NO2 and particulate matter are considered in this annual report. Further details of each of these pollutants is given below.

Nitrogen dioxide (NO2)

2.1.2 Nitrogen dioxide (NO2) is a secondary pollutant produced by the oxidation of nitric oxide (NO). NO and NO2 are collectively termed nitrogen oxides (NOx). Almost a third of the UK NOx emissions are from road transport. The majority of NOx emitted from vehicles is in the form of NO, which oxidises rapidly in the presence of ozone (O3) to form NO2. In high concentrations, NO2 can affect the respiratory system and can also enhance the response to allergens in sensitive individuals, whereas NO does not have any observable effect on human health at the range of concentrations found in ambient air. Elevated concentrations of oxides of nitrogen can have an adverse effect on vegetation, including leaf or needle damage and reduced growth. Deposition of pollutants derived from oxides of nitrogen emission contribute to acidification and/or eutrophication of sensitive habitats.

Particulate matter

2.1.3 The principal sources of particles are combustion processes, which include traffic and industry. Particulate matter in vehicle exhaust gases consists of carbon nuclei onto which a wide range of compounds are absorbed. These particles have an effective aerodynamic diameter of less than 10 micrometres (µm). Particles in this size range are referred to as PM10. Finer size fraction are referred to as PM2.5. These particles have an effective aerodynamic diameter of less than 2.5µm. Diesel engines produce the majority of particulate emissions from the vehicle fleets. Approximately a fifth of primary PM10 emissions in the UK are derived from road transport. Particulate matter appear to be associated with a range of symptoms of ill health including effects on the respiratory and cardiovascular systems, on asthma and on mortality.

2.2 Summary of relevant legislation

2.2.1 Air quality monitoring data has been compared against limit values and objectives set out in the following legislation:

- The Air Quality (England) Regulations 2000[3], Air Quality (England) (Amendment) Regulations 2002[4], the Air Quality Standards Regulations 2010[5] and the Air Quality Standards (Amendment) Regulations 2016[6]; and

[3] Department for Environment, Food and Rural Affairs, 2000, The Air Quality (England) Regulations 2000, The Stationery Office
[4] Department for Environment, Food and Rural Affairs, 2002, The Air Quality (England) (Amendment) Regulations 2002, The Stationery Office
[5] Department for Environment, Food and Rural Affairs, 2010, The Air Quality Standards Regulations 2010, The Stationery Office
Department for Environment, Food and Rural Affairs, 2016, The Air Quality Standards (Amendment) Regulations 2016, The Stationary Office
[6] Department for Environment, Food and Rural Affairs, 2016, The Air Quality Standards (Amendment) Regulations 2016, The Stationary Office

- Directive 2008/50/EC on Ambient Air Quality and Cleaner Air for Europe[7];

2.2.2 Air quality limit values and objectives are quality standards that have been set for clean air and to protect human health. Some pollutants have standards expressed as annual average concentrations and others have standards expressed as 24-hour, 1-hour or 15-minute average concentrations. Some pollutants have standards expressed in terms of both long-term and short-term concentrations.

2.2.3 Table 1 sets out the EU air quality limit values and UK national air quality objectives for the pollutants NO2 and PM10 for which significant effects were identified. PM2.5 is also included for completeness. Within this report, the term 'air quality standards' refers to both the English air quality objectives and the air quality limit values introduced in the UK based on EU Directives.

Table 1 – Relevant air quality standards

Pollutant	Averaging period	Air quality standard
Nitrogen dioxide (NO_2)	1 hour mean	200 µg/m^3 not to be exceeded more than 18 times a year
	Annual mean	40 µg/m^3
PM10	24 hour mean	50 µg/m^3 not to be exceeded more than 35 times a year
	Annual mean	40 µg/m^3
PM2.5	Annual mean	25 µg/m^3 to be achieved by 2020
	3 year mean	Target of 15% reduction in concentration at urban background locations to be achieved between 2010 and 2020.

2.3 Summary of monitoring undertaken by HS2

2.3.1 All HS2 Ltd. air quality monitoring surveys are intended to supplement air quality monitoring that is being undertaken by other parties such as Defra, local authorities and in some areas communities and academic institutions. Data from surveys undertaken by other parties is not reproduced within this report.

2.3.2 HS2 Ltd. commenced a baseline air quality survey at the end of June 2016 for locations where there were predicted to be significant effects on air quality around highways. This survey is

[7] Official Journal of the European Union, 2008, Directive 2008/50/EC of the European Parliament and of the Council of the 21 May 2008 on ambient air quality and cleaner air for Europe, EU

measuring annual mean NO2, for which potential significant effects were predicted around certain construction traffic routes in Greater London.

2.3.3 In relation to where significant effects were identified for PM10 for air quality around highways, supplementary surveys are not being undertaken as existing monitoring sites operated by Defra and/or local authorities are considered to give sufficient coverage[8].

2.4 Summary of NO2 monitoring methodology

2.4.1 A survey of NO2 concentrations using diffusion tubes commenced at the end of June 2016 for locations within Greater London. The survey was planned, installed and operated in accordance with Defra Local Air Quality Management Technical Guidance 2016 (LAQM.TG(16))[9].

2.4.2 The sites selected for inclusion in the survey include:

- locations where the ES predicted significant effects;
- co-located locations at pre-existing long term continuous monitoring sites, operated to European Union reference method standards for bias adjustment; and
- background and roadside sites where significant effects were not predicted to provide control locations not expected to be affected by the Proposed Scheme.

2.4.3 Diffusion tubes are a passive monitoring method, that has the benefit of not requiring mains power and can be deployed over a large number of locations. In accordance with Defra LAQM.TG(16) guidance, diffusion tubes are exposed for a 4 or 5 week period depending on the length of the month. The diffusion tubes are then collected and returned to the laboratory for analysis at the end of each month and new diffusion tubes are deployed for the next month.

2.4.4 In accordance with Defra LAQM.TG(16) guidance, NO2 diffusion tube surveys aim for a minimum data capture of 75% for each site for each year of the survey (i.e. there needs to be 9 out of 12 months with valid data at each site). This gives some allowance for the diffusion tube at a site to go missing or be damaged for a given month.

2.4.5 Where data capture over the year is less than 75% a process of annualisation can be applied in accordance with Defra LAQM.TG(16) guidance to calculate an annual mean equivalent for the site based on the comparison of the months with available data against a full dataset for a long term fixed continuous monitoring site operated by Defra or local authorities.

2.4.6 A process of bias adjustment is also undertaken each year. A triplicate set of diffusion tubes are co-located at long term fixed continuous monitoring sites operated by Defra or local authorities. The average concentration from the triplicate diffusion tubes is compared to the concentrations measured at the long term fixed continuous monitoring site and a correction factor applied to all sites in the survey to bring these into line with the long term fixed continuous monitoring site.

[8] HS2 will be undertaking surveys of indicative PM10 for the purposes of management of construction dust.
[9] Department for Environment, Food and Rural Affairs, 2016, Local Air Quality Management Technical guidance. Available at: https://laqm.defra.gov.uk/technical-guidance/

2.4.7 Where diffusion tube surveys include co-location with continuous monitors operated to EU reference method standards, Defra LAQM.TG(16) guidance considers diffusion tube monitoring to be a robust method for measurement of annual mean NO2.

2.4.8 Details of the diffusion tube locations included in the HS2 Ltd. air quality monitoring survey are given in the table in Appendix B and maps in Appendix F.

2.4.9 The diffusion tubes used for the survey in 2006 were supplied by Gradko Environmental. The diffusion tube preparation used was 20% triethanolamine (TEA) in de-ionised water[10].

Calculation of annual mean NO2 concentrations

2.4.10 Data collected with the diffusion tubes for the July to December 2016 period were annualised and bias adjusted in accordance with Defra LAQM.TG(16) guidance.

2.4.11 Continuous monitoring data, used to annualise and bias adjust diffusion tube data, were downloaded from www.londonair.org.uk.

2.4.12 Diffusion tube data for July to December 2016 were annualised in line with Defra LAQM.TG(16) guidance. The background[11] continuous monitoring sites Camden – Bloomsbury and Kensington and Chelsea – North Kensington were used to derive an annualisation factor for the data set.

2.4.13 Bias adjustment factors for background, roadside and kerbside locations[11] were derived using Defra's local bias adjustment factors spreadsheet[12]. Bias adjustment factors were derived using the data from diffusion tubes co-located with automatic monitoring sites. The background sites used were Camden – Bloomsbury and Kensington and Chelsea – North Kensington. The roadside sites used were, Camden – Euston Road, Ealing – Hanger Lane, and Ealing – Western Avenue. The kerbside sites used were Camden – Swiss Cottage and Westminster – Marylebone Road. Further details on the continuous monitoring sites is available at www.londonair.org.uk. The precision of the tubes (the difference between the triplicate tubes at each location) was represented by calculating the coefficient of variation. It is considered that if the average coefficient of variation is below 10 per cent, the survey is of good precision. All sites were found to have good precision and there for all sites were used for bias adjustment.

2.4.14 Full details of the annualisation and bias adjustment the factors calculated are presented in Appendix C.

2.5 HS2 NO2 survey monitoring results

2.5.1 Full monitoring results for the air quality NO2 diffusion tube survey are presented in the tables in Appendix B and maps in Appendix D.

[10] The Gradko 20% TEA in water diffusion tubes have a grey cap.
[11] Site location type are defined in Defra LAQM.TG(16).
Kerbside sites are within one metre of the kerb of a busy road.
Roadside sites are typically within one to five metres of the kerb of a busy road (although distance can be up to 15 m from the kerb in some cases).
Background sites in urban areas are distanced from sources and therefore broadly representative of city-wide background conditions, such as urban residential areas.
[12] Department of Environment, Food and Rural Affairs, 2011, local bias adjustment factors spreadsheet version 04. Available at: https://laqm.defra.gov.uk/bias-adjustment-factors/local-bias.html

2.6 Particulate matter monitoring results

2.6.1 HS2 has not undertaken supplementary surveys for particulate matter around highways as existing monitoring sites operated by Defra and/or local authorities are considered to give sufficient coverage for the areas over which significant effects were identified. Monitoring data from relevant Defra and local authority monitoring sites is presented in the London Air Quality Network Summary Report 2016[13], available at www.londonair.org.uk. The relevant monitoring sites are Camden – Bloomsbury, Camden – Euston Road, Camden – Swiss Cottage, Ealing – Hanger Lane, Ealing – Western Avenue, Kensington and Chelsea – North Kensington and Westminster – Marylebone Road.

3 Comparison to predictions in the environmental statement

3.1.1 Appendix E presents a comparison of the 2016 annual mean NO_2 diffusion tube results and the modelled prediction for 2017 NO_2 annual mean concentrations from the ES for the scenario without the Proposed Scheme in place[14]. The year 2016 was not modelled as part of the ES. The year 2017 was modelled for the ES as this was the earliest expected year in which construction for the Proposed Scheme would start.

3.1.2 This is an indicative comparison rather than an absolute one. There may be differences in the characteristics of the individual diffusion tube locations and the nearest receptor location assessed in the ES. For instance receptor locations assessed in the ES were typically at the facades of properties adjacent to roads affected by the Proposed Scheme. However due to the need to be able to access the sites to mount the diffusion tubes on a monthly basis they have typically been located on publicly accessible street furniture such as lampposts and signposts. The diffusion tube locations are intended to be representative of exposure locations along roads where significant effects were predicted during construction. In some instances, they are closer to roads than the locations where the public would typically be exposed.

3.1.3 Where comparisons of monitoring data and modelling prediction results are undertaken Defra LAQM.TG(16) guidance suggests that if the difference is less than ±25% then the comparison can be considered acceptable.

3.1.4 The comparison indicates that:

- The 2016 monitored concentrations have more locations within ±25% when compared to the 2017 modelled concentrations.
- Where the comparison has a difference of more than±25%:
  - For locations adjacent to high traffic flow roads such as Euston Road, Marylebone Road, and A40 and areas that would be subject to congestions, the monitored concentrations are

[13] Kings College London, 2017, London Air Quality Network Summary Report 2016, June 2017.
[14] Modelled annual mean NO_2 results are from the SES2 and AP3 Environmental Statement for locations east of the Edgware Road and from the SES and AP2 Environmental Statement for all other sites (predictions without Proposed Scheme concentrations are identical for the SES and AP2 and the SES3 and AP4 Environmental Statements).

higher than the modelled concentrations; and

- For locations away from major roads on side streets the monitored concentrations are lower than the modelled concentrations.

3.1.5 The key reasons for differences in 2016 monitored annual mean NO_2 concentrations and the modelled annual mean NO_2 concentrations are:

- For the ES modelling there was a more limited number of air quality monitoring sites available for model verification at the time the air quality modelling for the ES was undertaken;
- These sites were typically adjacent to high traffic roads recording concentrations well in excess of air quality standards;
- Monitoring sites representative of areas away from high traffic roads were limited so model performance in these areas could not be determined;
- This resulted in over adjustment of the air quality model for the locations away from high traffic roads and therefore higher predicted concentrations; and
- For areas adjacent to high traffic flow roads and subject to congestion, the air quality modelling undertaken for the ES, was not able to fully reflect the impacts of congestion[15].

3.1.6 The ES determined significance of the air quality impacts based on the change in concentration relative to the modelled without Proposed Scheme concentrations.

3.1.7 For the locations away from major roads where the modelled concentrations are higher than those monitored, then the modelling required a smaller change in concentrations due to the Proposed Scheme to give a significant effect. On this basis the modelling for the ES gave a worst case view of the significant effects due to the Proposed Scheme.

3.1.8 For locations adjacent to high traffic flow roads, where the monitored concentrations were higher than the modelled concentrations, the modelled concentrations were higher than air quality standards so the changes in concentrations required for a significant effect is already small. On this basis the modelling or the ES did not underestimate the significant effects due to the Proposed Scheme for these locations.

4 Actions to improve air quality

4.1 Proposed actions

4.1.1 In preparation for developing an air quality action plan for the Proposed Scheme HS2 Ltd. have already made commitments for measures to reduce emissions generated by construction activities. These measures are set out in the Code of Construction Practice (CoCP) and HS2 Phase One Information Paper E31: Air Quality.

[15] Where there is congestion the real world speeds of traffic are typically lower that those that are used in the air quality model. A very detailed level of modelling is required to reflect congestion in an air quality model, which was not possible for the ES due to the large geographic area over which the air quality assessment was undertaken.

4.1.2 The measures include:

- Construction vehicle emission standards requirements[16] and methods to manage their use via traffic management plans;
- Non Road mobile machinery emission standard requirements[16]; and
- Dust mitigation measures as set out in the CoCP.

4.2 Progress and impact of measures to address air quality

4.2.1 The Proposed Scheme is currently in the early stages of the construction period. The year 2016 is considered a baseline period. The year 2017 will also provide further baseline data due to the limited construction activities occurring during that year. Progress and impact of measures to improve air quality will therefore be reported in future annual reports.

[16] The HS2 emission standards are set out HS2 Phase One Information Paper E31: Air Quality

Appendix A- Summary of receptors with significant effects predicted in the ES.

The number of receptors with significant effects is presented in Table 2. This has been calculated from the annual mean NO2 modelling results presented in the ES, as amended. These calculations are a combination of results from the Supplementary Environmental Statement (SES) and Additional Provision (AP) 2, SES2 and AP3, SES3 and AP4. Air quality modelling was not undertaken for the SES4 and AP5 ES. The calculations use the latest reported modelling result for each receptor.

Table 2 – Summary of number of receptors modelled in the ES with adverse and beneficial significant effects for Greater London area

Significant effect	**Air quality impact descriptor**	**Number of receptors**
Significant adverse	Substantial adverse	227
Significant adverse	Moderate adverse	199
Not significant	Slight adverse	10
Not significant	Negligible	241
Not significant	Slight beneficial	10
Significant beneficial	Moderate beneficial	39
Significant beneficial	Substantial beneficial	31
Total number of receptors		**757**

Appendix B - HS2 Ltd. air quality monitoring survey locations

NO2

Table 3 gives details of the locations included in the HS2 Ltd. NO2 diffusion tube survey during 2016. Appendix F presents maps of the locations, labelled with the site ID.

Table 3 – Details of HS2 Ltd. air quality NO_2 diffusion tube monitoring survey locations

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type[17]	X coordinate	X coordinate	Height (metres)	Site purpose
HS2-000020BPM	-	LB Brent	Gorefield Place	Background	525222	183309	2.5	Background not affected by scheme
HS2-000020BNS	-	LB Brent	Tower Road by Willesden Jewish Cemetery	Background	522196	184448	2.5	Background not affected by scheme
HS2-000020BNG	-	LB Brent	Donnington Road	Roadside	523110	184055	2.5	Predicted significant effect
HS2-000020BN3	-	LB Brent	High Street Harlesden	Roadside	522335	182955	2.5	Predicted significant effect
HS2-000020BM5	002	LB Camden	Junction of St Chad's Street and Grays Inn Road	Roadside	530436	182929	2.3	Predicted significant effect
HS2-000020BM6	003	LB Camden	Brunswick Square	Roadside	530321	182268	2.5	Predicted significant effect
HS2-000020BM7	006	LB Camden	Chalton Street	Roadside	529894	182702	2.3	Predicted significant effect
HS2-000020BM8	007	LB Camden	Junction of Euston Square and Grafton Place	Roadside	529737	182641	2.3	Predicted significant effect

[17] Site location type are defined in Defra LAQM.TG(16). Kerbside sites are within one metre of the kerb of a busy road. Roadside sites are typically within one to five metres of the kerb of a busy road (although distance can be up to 15 m from the kerb in some cases). Background sites in urban areas are distanced from sources and therefore broadly representative of city-wide background conditions, such as urban residential areas.

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type[17]	X coordinate	X coordinate	Height (metres)	Site purpose
HS2-000020BM9	008	LB Camden	Junction of Endsleigh Gardens and Upper Woburn Place	Roadside	529785	182529	2.4	Predicted significant effect
HS2-000020BMA	012	LB Camden	Junction of Euston Road and Gower Street	Roadside	529429	182375	2.5	Predicted significant effect
HS2-000020BMB	015	LB Camden	Whitfield Street	Background	529273	182114	2.5	Predicted significant effect
HS2-000020BMC	016	LB Camden	Hampstead Road	Roadside	529232	182511	2.3	Predicted significant effect
HS2-000020BMF	021	LB Camden	Junction of Polygon Road and Ossulston Street	Background	529715	183123	2.5	Predicted significant effect
HS2-000020BMH	025	LB Camden	Nash Street	Background	528861	182717	2.5	Predicted significant effect
HS2-000020BMJ	026	LB Camden	Junction of Stanhope Street and Robert Street	Background	529080	182698	2.5	Predicted significant effect
HS2-000020BMK	029	LB Camden	Junction of Plender Street and Bayham Street	Roadside	529196	183546	2.5	Predicted significant effect
HS2-000020BML	031	LB Camden	Junction of Arlington Road and Mornington Crescent	Background	529093	183356	2.5	Predicted significant effect

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type[17]	X coordinate	X coordinate	Height (metres)	Site purpose
HS2-000020BMM	033	LB Camden	Junction of Bayham Street and Pratt Street	Roadside	529084	183722	2.5	Predicted significant effect
HS2-000020BMN	034	LB Camden	Junction of Delancey Street and Albert Street	Roadside	528850	183573	2.5	Predicted significant effect
HS2-000020BMQ	036	LB Camden	Junction of Parkway and Delancey Street	Roadside	528662	183604	2.5	Predicted significant effect
HS2-000020BMR	038	LB Camden	Junction of Oval Road and Jamestown Road	Background	528548	183967	2.5	Predicted significant effect
HS2-000020BMS	039	LB Camden	Junction of Chalk Farm Road and Castlehaven Road	Roadside	528685	184188	2.5	Predicted significant effect
HS2-000020BMT	040	LB Camden	Junction of Camden Road and Camden Street	Kerbside	529086	184025	2.3	Predicted significant effect
HS2-000020BMU	046	LB Camden	Junction of Southampton Road and Fleet Road	Roadside	527783	185407	2.5	Predicted significant effect
HS2-000020BMV	048	LB Camden	Primrose Hill Road	Roadside	527538	184250	2.5	Predicted significant effect
HS2-000020BMW	049	LB Camden	Junction of Finchley Road and Hilgrove Road	Roadside	526619	184081	2.3	Predicted significant effect

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type[17]	X coordinate	X coordinate	Height (metres)	Site purpose
HS2-000020BMZ	057	LB Camden	Junction of Finchley Road and Hendon Way	Roadside	525102	186042	2.3	Predicted significant effect
HS2-000020BNA	076	LB Camden	Junction of Regent's Park Road and Rothwell Street	Roadside	527884	183980	2.5	Predicted significant effect
HS2-000020BNB	079	LB Camden	Junction of Gloucester Gate Bridge and Park Village East	Roadside	528639	183518	2.5	Predicted significant effect
HS2-000020BNC	082	LB Camden	Junction of Outer Circle and Gloucester Gate	Background	528528	183443	2.5	Predicted significant effect
HS2-000020BNH	090	LB Camden	Junction of Parkway and Albert Street	Kerbside	528763	183720	2.5	Predicted significant effect
HS2-000020BNN	103	LB Camden	Lincoln's Inn Fields	Background	530744	181308	2.5	Background not affected by scheme
HS2-000020BNQ	105	LB Camden	Camley Street	Background	529735	183737	2.3	Background not affected by scheme
HS2-000020BNY	115	LB Camden	Junction of Mill Lane and Hillfield Road	Roadside	524839	185136	2.5	Roadside not affected by scheme

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type[17]	X coordinate	X coordinate	Height (metres)	Site purpose
HS2-000020BNZ	116	LB Camden	Mansfield Road	Roadside	528050	185508	2.5	Roadside not affected by scheme
HS2-000020BP0	117	LB Camden	Junction of Camden Road and Torriano Avenue	Roadside	529708	184871	2.3	Roadside not affected by scheme
HS2-000020BP2	119	LB Camden	Junction of Grays Inn Road and Holborn	Roadside	531149	181616	2.5	Roadside not affected by scheme
HS2-000020BPB	124	LB Camden	Camden High Street	Roadside	528966	183735	2.3	Predicted significant effect
HS2-000020BPC	125	LB Camden	Castlehaven Road	Background	528788	184591	2.5	Predicted significant effect
HS2-000020BPD	126	LB Camden	Prince of Wales Road	Roadside	528571	184683	2.5	Predicted significant effect
HS2-000020BPE	128	LB Camden	Haverstock Hill	Roadside	527710	184749	2.5	Predicted significant effect
HS2-000020BPF	129	LB Camden	Junction of Primrose Gardens and England's Lane	Background	527549	184640	2.5	Predicted significant effect
HS2-000020BPX	159	LB Camden	Netley Street	Background	529177	182625	2.5	Predicted significant effect
HS2-000020BPY	162	LB Camden	Stanhope Street	Background	529060	182947	2.5	Predicted significant effect

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type[17]	X coordinate	X coordinate	Height (metres)	Site purpose
HS2-000020BPZ	163	LB Camden	Albany Street	Roadside	528790	182923	2.5	Predicted significant effect
HS2-000020BQ0	164	LB Camden	Werrington Street	Background	529493	183113	2.3	Predicted significant effect
HS2-000020BQ1	165	LB Camden	Polygon Road	Background	529574	183045	2.5	Predicted significant effect
HS2-000020BQ2	166	LB Camden	Alexandra Place	Background	526320	183980	2.5	Predicted significant effect
HS2-000020BQ3	167	LB Camden	Harrington Square	Kerbside	529228	183172	2.5	Predicted significant effect
HS2-000020BQ4	168	LB Camden	Junction of North Gower Street and Starcross Street	Background	529290	182572	2.5	Predicted significant effect
HS2-000020BPW	169	LB Camden	Junction of Delancey Street and Arlington Road	Roadside	528939	183637	2.5	Predicted significant effect
HS2-000020BPU	180	LB Camden	Junction of Gower Street And Grafton Way	Roadside	529476	182267	2.5	Predicted significant effect
HS2-000020BPV	181	LB Camden	Phoenix Road	Background	529653	182958	2.5	Predicted significant effect
HS2-000020BQ5	182	LB Camden	Adelaide Road	Roadside	527713	184392	2.7	Predicted significant effect
HS2-000020BQ6	183	LB Camden	Mornington Terrace	Background	528836	183474	2.5	Predicted significant effect

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type[17]	X coordinate	X coordinate	Height (metres)	Site purpose
HS2-000020BQ7	184	LB Camden	Arlington Road	Background	529009	183479	2.5	Predicted significant effect
HS2-000020BQ8	185	LB Camden	Clarkson Row	Background	529024	183213	2.5	Predicted significant effect
HS2-000020BQ9	186	LB Camden	Park Village East	Background	528923	183121	2.5	Predicted significant effect
HS2-000020BQA	187	LB Camden	Eversholt street	Kerbside	529386	183132	2.5	Predicted significant effect
HS2-000020BQB	188	LB Camden	Junction of Harrington Street and Varndell Street	Background	529147	182816	2.5	Predicted significant effect
HS2-000020BQC	189	LB Camden	Junction of Robert Street and Hampstead Road	Kerbside	529199	182704	2.5	Predicted significant effect
HS2-000020BQD	190	LB Camden	Drummond Crescent	Background	529648	182856	2.5	Predicted significant effect
HS2-000020BP9	Blooms_CMS	LB Camden	Triplicate site in Russell Square at Bloomsbury urban background automatic monitoring station	Background	530120	182034	2.5	Triplicate colocation at Camden Bloomsbury background site
HS2-000020BP5	Euston_CMS	LB Camden	Triplicate site at Euston Road roadside automatic monitoring station	Roadside	529895	182657	2.5	Triplicate colocation at Camden Euston Road roadside site

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type[17]	X coordinate	X coordinate	Height (metres)	Site purpose
HS2-000020BP4	SwissCot_CMS	LB Camden	Triplicate site on Finchley Road at Swiss Cottage kerbside automatic monitoring station	Kerbside	526633	184392	3.0	Triplicate colocation at Camden Swiss Cottage kerbside site
HS2-000020BN5	067	LB Ealing	Junction of Victoria Road and Old Oak Lane	Roadside	521443	182477	2.3	Predicted significant effect
HS2-000020BN6	068	LB Ealing	Junction of Old Oak Common Lane and Wells House Road (telegraph pole June to November 2016)	Roadside	521306	182078	2.5	Predicted significant effect
HS2-000020BQG			Junction of Old Oak Common Lane and Wells House Road (moved to lamppost at end of November 2016)	Roadside	521312	182033	2.5	
HS2-000020BN7	069	LB Ealing	The Approach	Roadside	520959	181102	2.3	Predicted significant effect
HS2-000020BN8	070	LB Ealing	Junction of Conway Drive and Wales Farm Road (telegraph pole June to November 2016)	Roadside	520864	181734	2.3	Predicted significant effect

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type[17]	X coordinate	X coordinate	Height (metres)	Site purpose
HS2-000020BQF			Junction of Conway Drive and Wales Farm Road (moved to lamppost at end of November 2016)	Roadside	520856	181733	2.5	
HS2-000020BP7	-	LB Ealing	Triplicate site at Ealing Hangar Lane Gyratory roadside automatic monitoring station	Roadside	518537	182708	2.0	Triplicate colocation at Ealing Hanger Lane roadside site
HS2-000020BP6	-	LB Ealing	Triplicate site at Ealing Western Avenue roadside automatic monitoring station	Roadside	520430	181950	2.0	Triplicate colocation at Ealing Western Avenue roadside site
HS2-000020BN2	062	LB Hammersmith and Fulham	Du Cane Road	Roadside	523092	181264	2.5	Predicted significant effect
HS2-000020BN4	066	LB Hammersmith and Fulham	Old Oak Road	Roadside	521625	180871	2.3	Predicted significant effect
HS2-000020BNR	106	LB Hammersmith and Fulham	Shepherd's Bush Common, Uxbridge Road	Background	523481	179871	2.5	Background not affected by scheme
HS2-000020BNX	114	LB Hammersmith and Fulham	A402 Goldhawk Road	Roadside	522035	179199	2.5	Roadside not affected by scheme
HS2-000020BPJ	132	LB Hammersmith and Fulham	Junction of Wulstan Street and Du Cane Road	Roadside	522003	181109	2.5	Predicted significant effect

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type[17]	X coordinate	X coordinate	Height (metres)	Site purpose
			(telegraph pole June to November 2016)					
HS2-000020BQE			Junction of Wulstan Street and Du Cane Road (moved to lamppost at end of November 2016)	Background	521996	181118	2.5	
HS2-000020BPP	138	LB Hammersmith and Fulham	A219 Scrubs Lane, South of Harrow Road	Roadside	522378	182877	2.5	Predicted significant effect
HS2-000020BPT	158	LB Hammersmith and Fulham	A219 Scrubs Lane, north of Hythe Road	Roadside	522478	182517	2.5	Predicted significant effect
HS2-000020BN1	060	RB Kensington and Chelsea	St Anns Villas	Roadside	523998	180160	2.5	Predicted significant effect
HS2-000020BNF	085	RB Kensington and Chelsea	St Anns Road	Roadside	523849	180620	2.5	Predicted significant effect
HS2-000020BPO	137	RB Kensington and Chelsea	Silchester Road	Roadside	523792	181066	2.5	Predicted significant effect
HS2-000020BPQ	139	RB Kensington and Chelsea	Ladbroke Grove	Roadside	524038	182028	2.5	Predicted significant effect
HS2-000020BPR	156	RB Kensington and Chelsea	Junction of Crowthorne Road and Bramley Road	Roadside	523763	181172	2.5	Predicted significant effect

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type[17]	X coordinate	X coordinate	Height (metres)	Site purpose
HS2-000020BPS	157	RB Kensington and Chelsea	B450 Ladbroke Grove, between A404 Harrow Road and Kensal Road	Roadside	523886	182358	2.5	Predicted significant effect
HS2-000020BPA	-	RB Kensington and Chelsea	Triplicate site at Sion Manning School, St. Charles' Square at to the North Kensington urban background automatic monitoring station	Background	524045	181752	2.5	Triplicate colocation at Kensington and Chelsea North Kensington background site
HS2-000020BPH	-	City of Westminster	Junction of St John's Wood Terrace and Wellington Road	Roadside	526827	183201	2.3	Predicted significant effect
HS2-000020BPG	-	City of Westminster	St John's Wood Road	Roadside	527019	182748	2.3	Predicted significant effect
HS2-000020BNL	-	City of Westminster	Penfold Street	Background	526914	182077	2.3	Background not affected by scheme
HS2-000020BNK	-	City of Westminster	Edgware Road Underground Station	Roadside	527048	181731	2.3	Predicted significant effect
HS2-000020BNJ	-	City of Westminster	Park Road, Hanover Gate	Roadside	527359	182633	2.3	Predicted significant effect
HS2-000020BNo	-	City of Westminster	Ladbroke Grove	Roadside	523869	182465	2.3	Predicted significant effect

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type[17]	X coordinate	X coordinate	Height (metres)	Site purpose
HS2-000020BMY	-	City of Westminster	Junction of Blomfield Road and Edgware Road	Roadside	526549	182226	2.3	Predicted significant effect
HS2-000020BMX	-	City of Westminster	A5205 Prince Albert Road	Roadside	527206	182887	2.3	Predicted significant effect
HS2-000020BP1	-	City of Westminster	Brook Street	Roadside	528597	180942	2.3	Roadside not affected by scheme
HS2-000020BND	-	City of Westminster	Outer Circle Regent's Park at York Gate	Kerbside	528276	182185	2.3	Predicted significant effect
HS2-000020BMD	-	City of Westminster	Park Crescent	Roadside	528776	182170	2.3	Predicted significant effect
HS2-000020BME	-	City of Westminster	Great Portland Street at junction of A501 and A4201	Roadside	528901	182180	2.3	Predicted significant effect
HS2-000020BP3	-	City of Westminster	Triplicate site at Marylebone Road kerbside automatic monitoring station	Kerbside	528057	181990	2.5	Triplicate colocation at Westminster Marylebone Road roadside site

Appendix C- Annualisation and bias adjustment of NO2 diffusion tubes

Table 4 – Annualisation and bias adjustment factors applied to each monitoring site

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type	2016 annualisation factor[18]	2016 bias adjustment factor
HS2-000020BPM	-	LB Brent	Gorefield Place	Background	0.968	0.935
HS2-000020BNS	-	LB Brent	Tower Road by Willesden Jewish Cemetery	Background	0.955	0.935
HS2-000020BNG	-	LB Brent	Donnington Road	Roadside	1.026	0.955
HS2-000020BN3	-	LB Brent	High Street Harlesden	Roadside	1.025	0.955
HS2-000020BM5	002	LB Camden	Junction of St Chad's Street and Grays Inn Road	Roadside	1.040	0.955
HS2-000020BM6	003	LB Camden	Brunswick Square	Roadside	1.030	0.955
HS2-000020BM7	006	LB Camden	Chalton Street	Roadside	1.032	0.955
HS2-000020BM8	007	LB Camden	Junction of Euston Square and Grafton Place	Roadside	1.037	0.955
HS2-000020BM9	008	LB Camden	Junction of Endsleigh Gardens and Upper Woburn Place	Roadside	1.040	0.955
HS2-000020BMA	012	LB Camden	Junction of Euston Road and Gower Street	Roadside	1.040	0.955
HS2-000020BMB	015	LB Camden	Whitfield Street	Background	0.982	0.935
HS2-000020BMC	016	LB Camden	Hampstead Road	Roadside	1.035	0.955

[18] Sites have not been annualised where there is only one month of monitoring data.

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type	2016 annualisation factor[18]	2016 bias adjustment factor
HS2-000020BMF	021	LB Camden	Junction of Polygon Road and Ossulston Street	Background	1.028	0.935
HS2-000020BMH	025	LB Camden	Nash Street	Background	0.990	0.935
HS2-000020BMJ	026	LB Camden	Junction of Stanhope Street and Robert Street	Background	1.026	0.935
HS2-000020BMK	029	LB Camden	Junction of Plender Street and Bayham Street	Roadside	1.026	0.955
HS2-000020BML	031	LB Camden	Junction of Arlington Road and Mornington Crescent	Background	1.026	0.935
HS2-000020BMM	033	LB Camden	Junction of Bayham Street and Pratt Street	Roadside	1.026	0.955
HS2-000020BMN	034	LB Camden	Junction of Delancey Street and Albert Street	Roadside	1.026	0.955
HS2-000020BMQ	036	LB Camden	Junction of Parkway and Delancey Street	Roadside	1.026	0.955
HS2-000020BMR	038	LB Camden	Junction of Oval Road and Jamestown Road	Background	1.027	0.935
HS2-000020BMS	039	LB Camden	Junction of Chalk Farm Road and Castlehaven Road	Roadside	1.027	0.955
HS2-000020BMT	040	LB Camden	Junction of Camden Road and Camden Street	Kerbside	1.037	0.971
HS2-000020BMU	046	LB Camden	Junction of Southampton Road and Fleet Road	Roadside	1.027	0.955

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type	2016 annualisation factor[18]	2016 bias adjustment factor
HS2-000020BMV	048	LB Camden	Primrose Hill Road	Roadside	1.152	0.955
HS2-000020BMW	049	LB Camden	Junction of Finchley Road and Hilgrove Road	Roadside	1.115	0.955
HS2-000020BMZ	057	LB Camden	Junction of Finchley Road and Hendon Way	Roadside	1.036	0.955
HS2-000020BNA	076	LB Camden	Junction of Regent's Park Road and Rothwell Street	Roadside	1.027	0.955
HS2-000020BNB	079	LB Camden	Junction of Gloucester Gate Bridge and Park Village East	Roadside	1.026	0.955
HS2-000020BNC	082	LB Camden	Junction of Outer Circle and Gloucester Gate	Background	0.959	0.935
HS2-000020BNH	090	LB Camden	Junction of Parkway and Albert Street	Kerbside	1.026	0.971
HS2-000020BNN	103	LB Camden	Lincoln's Inn Fields	Background	1.030	0.935
HS2-000020BNQ	105	LB Camden	Camley Street	Background	0.968	0.935
HS2-000020BNY	115	LB Camden	Junction of Mill Lane and Hillfield Road	Roadside	0.991	0.955
HS2-000020BNZ	116	LB Camden	Mansfield Road	Roadside	0.955	0.955
HS2-000020BP0	117	LB Camden	Junction of Camden Road and Torriano Avenue	Roadside	1.037	0.955
HS2-000020BP2	119	LB Camden	Junction of Grays Inn Road and Holborn	Roadside	1.030	0.955
HS2-000020BPB	124	LB Camden	Camden High Street	Roadside	1.035	0.955

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type	2016 annualisation factor[18]	2016 bias adjustment factor
HS2-000020BPC	125	LB Camden	Castlehaven Road	Background	1.027	0.935
HS2-000020BPD	126	LB Camden	Prince of Wales Road	Roadside	1.027	0.955
HS2-000020BPE	128	LB Camden	Haverstock Hill	Roadside	1.027	0.955
HS2-000020BPF	129	LB Camden	Junction of Primrose Gardens and England's Lane	Background	1.027	0.935
HS2-000020BPX	159	LB Camden	Netley Street	Background	1.093	0.935
HS2-000020BPY	162	LB Camden	Stanhope Street	Background	1.026	0.935
HS2-000020BPZ	163	LB Camden	Albany Street	Roadside	1.025	0.955
HS2-000020BQ0	164	LB Camden	Werrington Street	Background	1.098	0.935
HS2-000020BQ1	165	LB Camden	Polygon Road	Background	1.028	0.935
HS2-000020BQ2	166	LB Camden	Alexandra Place	Background	1.013	0.935
HS2-000020BQ3	167	LB Camden	Harrington Square	Kerbside	1.026	0.971
HS2-000020BQ4	168	LB Camden	Junction of North Gower Street and Starcross Street	Background	1.026	0.935
HS2-000020BPW	169	LB Camden	Junction of Delancey Street and Arlington Road	Roadside	1.026	0.955
HS2-000020BPU	180	LB Camden	Junction of Gower Street And Grafton Way	Roadside	1.030	0.955
HS2-000020BPV	181	LB Camden	Phoenix Road	Background	0.955	0.935
HS2-000020BQ5	182	LB Camden	Adelaide Road	Roadside	Not annualised	0.955
HS2-000020BQ6	183	LB Camden	Mornington Terrace	Background	Not annualised	0.935

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type	2016 annualisation factor[18]	2016 bias adjustment factor
HS2-000020BQ7	184	LB Camden	Arlington Road	Background	Not annualised	0.935
HS2-000020BQ8	185	LB Camden	Clarkson Row	Background	Not annualised	0.935
HS2-000020BQ9	186	LB Camden	Park Village East	Background	Not annualised	0.935
HS2-000020BQA	187	LB Camden	Eversholt street	Kerbside	Not annualised	0.971
HS2-000020BQB	188	LB Camden	Junction of Harrington Street and Varndell Street	Background	Not annualised	0.935
HS2-000020BQC	189	LB Camden	Junction of Robert Street and Hampstead Road	Kerbside	Not annualised	0.971
HS2-000020BQD	190	LB Camden	Drummond Crescent	Background	Not annualised	0.935
HS2-000020BP9	Blooms_CMS	LB Camden	Triplicate site in Russell Square at Bloomsbury urban background automatic monitoring station	Background	1.030	0.935
HS2-000020BP5	Euston_CMS	LB Camden	Triplicate site at Euston Road roadside automatic monitoring station	Roadside	1.040	0.955
HS2-000020BP4	SwissCot_CMS	LB Camden	Triplicate site on Finchley Road at Swiss Cottage kerbside automatic monitoring station	Kerbside	0.949	0.971
HS2-000020BN5	067	LB Ealing	Junction of Victoria Road and Old Oak Lane	Roadside	1.036	0.955
HS2-000020BN6	068	LB Ealing	Junction of Old Oak Common	Roadside	1.164	0.955

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type	2016 annualisation factor[18]	2016 bias adjustment factor
			Lane and Wells House Road (telegraph pole June to November 2016)			
HS2-000020BQG			Junction of Old Oak Common Lane and Wells House Road (moved to lamppost at end of November 2016)	Roadside	Not annualised	0.955
HS2-000020BN7	069	LB Ealing	The Approach	Roadside	1.036	0.955
HS2-000020BN8	070	LB Ealing	Junction of Conway Drive and Wales Farm Road (telegraph pole June to November 2016)	Roadside	1.164	0.955
HS2-000020BQF			Junction of Conway Drive and Wales Farm Road (moved to lamppost at end of November 2016)	Roadside	Not annualised	0.955
HS2-000020BP7	-	LB Ealing	Triplicate site at Ealing Hangar Lane Gyratory roadside automatic monitoring station	Roadside	1.036	0.955
HS2-000020BP6	-	LB Ealing	Triplicate site at Ealing Western Avenue roadside automatic monitoring station	Roadside	1.036	0.955
HS2-000020BN2	062	LB Hammersmith and Fulham	Du Cane Road	Roadside	1.025	0.955

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type	2016 annualisation factor[18]	2016 bias adjustment factor
HS2-000020BN4	066	LB Hammersmith and Fulham	Old Oak Road	Roadside	1.108	0.955
HS2-000020BNR	106	LB Hammersmith and Fulham	Shepherd's Bush Common, Uxbridge Road	Background	1.152	0.935
HS2-000020BNX	114	LB Hammersmith and Fulham	A402 Goldhawk Road	Roadside	1.152	0.955
HS2-000020BPJ	132	LB Hammersmith and Fulham	Junction of Wulstan Street and Du Cane Road (telegraph pole June to November 2016)	Roadside	1.148	0.955
HS2-000020BQE			Junction of Wulstan Street and Du Cane Road (moved to lamppost at end of November 2016)	Background	Not annualised	0.935
HS2-000020BPP	138	LB Hammersmith and Fulham	A219 Scrubs Lane, South of Harrow Road	Roadside	1.025	0.955
HS2-000020BPT	158	LB Hammersmith and Fulham	A219 Scrubs Lane, north of Hythe Road	Roadside	1.025	0.955
HS2-000020BN1	060	RB Kensington and Chelsea	St Anns Villas	Roadside	1.025	0.955
HS2-000020BNF	085	RB Kensington and Chelsea	St Anns Road	Roadside	1.180	0.955
HS2-000020BPO	137	RB Kensington and Chelsea	Silchester Road	Roadside	1.025	0.955
HS2-000020BPQ	139	RB Kensington and Chelsea	Ladbroke Grove	Roadside	1.025	0.955
HS2-000020BPR	156	RB Kensington and Chelsea	Junction of Crowthorne Road and Bramley Road	Roadside	1.025	0.955
HS2-000020BPS	157	RB Kensington and Chelsea	B450 Ladbroke Grove, between A404 Harrow	Roadside	1.025	0.955

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type	2016 annualisation factor[18]	2016 bias adjustment factor
			Road and Kensal Road			
HS2-000020BPA	-	RB Kensington and Chelsea	Triplicate site at Sion Manning School, St. Charles' Square at to the North Kensington urban background automatic monitoring station	Background	1.025	0.935
HS2-000020BPH	-	City of Westminster	Junction of St John's Wood Terrace and Wellington Road	Roadside	1.038	0.955
HS2-000020BPG	-	City of Westminster	St John's Wood Road	Roadside	1.035	0.955
HS2-000020BNL	-	City of Westminster	Penfold Street	Background	1.035	0.935
HS2-000020BNK	-	City of Westminster	Edgware Road Underground Station	Roadside	1.035	0.955
HS2-000020BNJ	-	City of Westminster	Park Road, Hanover Gate	Roadside	1.035	0.955
HS2-000020BNo	-	City of Westminster	Ladbroke Grove	Roadside	1.036	0.955
HS2-000020BMY	-	City of Westminster	Junction of Blomfield Road and Edgware Road	Roadside	1.035	0.955
HS2-000020BMX	-	City of Westminster	A5205 Prince Albert Road	Roadside	1.035	0.955
HS2-000020BP1	-	City of Westminster	Brook Street	Roadside	1.030	0.955
HS2-000020BND	-	City of Westminster	Outer Circle Regent's Park at York Gate	Kerbside	1.035	0.971
HS2-000020BMD	-	City of Westminster	Park Crescent	Roadside	1.037	0.955
HS2-000020BME	-	City of Westminster	Great Portland Street at	Roadside	1.037	0.955

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type	2016 annualisation factor[18]	2016 bias adjustment factor
			junction of A501 and A4201			
HS2-000020BP3	-	City of Westminster	Triplicate site at Marylebone Road kerbside automatic monitoring station	Kerbside	1.035	0.971

Appendix D - air quality monitoring results

HS2 NO2 diffusion tube results

Table 5 – Annual mean NO_2 monitoring results for 2016

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type	2016 annual mean NO2 concentration (µg/m3)
HS2-000020BPM	-	LB Brent	Gorefield Place	Background	38.0
HS2-000020BNS	-	LB Brent	Tower Road by Willesden Jewish Cemetery	Background	34.1
HS2-000020BNG	-	LB Brent	Donnington Road	Roadside	**45.5**
HS2-000020BN3	-	LB Brent	High Street Harlesden	Roadside	**65.7**
HS2-000020BM5	002	LB Camden	Junction of St Chad's Street and Grays Inn Road	Roadside	**59.8**
HS2-000020BM6	003	LB Camden	Brunswick Square	Roadside	**50.4**
HS2-000020BM7	006	LB Camden	Chalton Street	Roadside	**66.8**
HS2-000020BM8	007	LB Camden	Junction of Euston Square and Grafton Place	Roadside	**66.9**
HS2-000020BM9	008	LB Camden	Junction of Endsleigh Gardens and Upper Woburn Place	Roadside	**59.5**
HS2-000020BMA	012	LB Camden	Junction of Euston Road and Gower Street	Roadside	**70.1**
HS2-000020BMB	015	LB Camden	Whitfield Street	Background	**46.7**
HS2-000020BMC	016	LB Camden	Hampstead Road	Roadside	**68.0**
HS2-000020BMF	021	LB Camden	Junction of Polygon Road and Ossulston Street	Background	**42.4**
HS2-000020BMH	025	LB Camden	Nash Street	Background	**42.5**
HS2-000020BMJ	026	LB Camden	Junction of Stanhope Street and Robert Street	Background	**44.1**
HS2-000020BMK	029	LB Camden	Junction of Plender Street and Bayham Street	Roadside	**60.5**
HS2-000020BML	031	LB Camden	Junction of Arlington Road	Background	**44.9**

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type	2016 annual mean NO_2 concentration ($\mu g/m^3$)
			and Mornington Crescent		
HS2-000020BMM	033	LB Camden	Junction of Bayham Street and Pratt Street	Roadside	**71.4**
HS2-000020BMN	034	LB Camden	Junction of Delancey Street and Albert Street	Roadside	**45.6**
HS2-000020BMQ	036	LB Camden	Junction of Parkway and Delancey Street	Roadside	**61.0**
HS2-000020BMR	038	LB Camden	Junction of Oval Road and Jamestown Road	Background	**43.2**
HS2-000020BMS	039	LB Camden	Junction of Chalk Farm Road and Castlehaven Road	Roadside	**61.0**
HS2-000020BMT	040	LB Camden	Junction of Camden Road and Camden Street	Kerbside	**88.1**
HS2-000020BMU	046	LB Camden	Junction of Southampton Road and Fleet Road	Roadside	**45.0**
HS2-000020BMV	048	LB Camden	Primrose Hill Road	Roadside	**43.4**
HS2-000020BMW	049	LB Camden	Junction of Finchley Road and Hilgrove Road	Roadside	**63.7**
HS2-000020BMZ	057	LB Camden	Junction of Finchley Road and Hendon Way	Roadside	**93.4**
HS2-000020BNA	076	LB Camden	Junction of Regent's Park Road and Rothwell Street	Roadside	**42.3**
HS2-000020BNB	079	LB Camden	Junction of Gloucester Gate Bridge and Park Village East	Roadside	**50.2**
HS2-000020BNC	082	LB Camden	Junction of Outer Circle and Gloucester Gate	Background	32.4

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type	2016 annual mean NO_2 concentration ($\mu g/m^3$)
HS2-000020BNH	090	LB Camden	Junction of Parkway and Albert Street	Kerbside	**49.6**
HS2-000020BNN	103	LB Camden	Lincoln's Inn Fields	Background	38.6
HS2-000020BNQ	105	LB Camden	Camley Street	Background	**47.5**
HS2-000020BNY	115	LB Camden	Junction of Mill Lane and Hillfield Road	Roadside	**43.8**
HS2-000020BNZ	116	LB Camden	Mansfield Road	Roadside	36.4
HS2-000020BP0	117	LB Camden	Junction of Camden Road and Torriano Avenue	Roadside	**60.6**
HS2-000020BP2	119	LB Camden	Junction of Grays Inn Road and Holborn	Roadside	**52.0**
HS2-000020BPB	124	LB Camden	Camden High Street	Roadside	**74.6**
HS2-000020BPC	125	LB Camden	Castlehaven Road	Background	**41.0**
HS2-000020BPD	126	LB Camden	Prince of Wales Road	Roadside	36.8
HS2-000020BPE	128	LB Camden	Haverstock Hill	Roadside	**48.3**
HS2-000020BPF	129	LB Camden	Junction of Primrose Gardens and England's Lane	Background	**40.9**
HS2-000020BPX	159	LB Camden	Netley Street	Background	**41.5**
HS2-000020BPY	162	LB Camden	Stanhope Street	Background	38.3
HS2-000020BPZ	163	LB Camden	Albany Street	Roadside	**47.4**
HS2-000020BQ0	164	LB Camden	Werrington Street	Background	**41.8**
HS2-000020BQ1	165	LB Camden	Polygon Road	Background	39.7
HS2-000020BQ2	166	LB Camden	Alexandra Place	Background	34.8
HS2-000020BQ3	167	LB Camden	Harrington Square	Kerbside	**53.8**
HS2-000020BQ4	168	LB Camden	Junction of North Gower Street and Starcross Street	Background	**43.8**
HS2-000020BPW	169	LB Camden	Junction of Delancey Street and Arlington Road	Roadside	**53.4**

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type	2016 annual mean NO_2 concentration ($\mu g/m^3$)
HS2-000020BPU	180	LB Camden	Junction of Gower Street And Grafton Way	Roadside	**59.7**
HS2-000020BPV	181	LB Camden	Phoenix Road	Background	**40.1**
HS2-000020BQ5	182	LB Camden	Adelaide Road	Roadside	**54.6**
HS2-000020BQ6	183	LB Camden	Mornington Terrace	Background	**47.8**
HS2-000020BQ7	184	LB Camden	Arlington Road	Background	**52.4**
HS2-000020BQ8	185	LB Camden	Clarkson Row	Background	No data
HS2-000020BQ9	186	LB Camden	Park Village East	Background	**49.0**
HS2-000020BQA	187	LB Camden	Eversholt street	Kerbside	**71.3**
HS2-000020BQB	188	LB Camden	Junction of Harrington Street and Varndell Street	Background	**54.1**
HS2-000020BQC	189	LB Camden	Junction of Robert Street and Hampstead Road	Kerbside	**59.3**
HS2-000020BQD	190	LB Camden	Drummond Crescent	Background	**58.7**
HS2-000020BP9	Blooms_CMS	LB Camden	Triplicate site in Russell Square at Bloomsbury urban background automatic monitoring station	Background	39.2
HS2-000020BP5	Euston_CMS	LB Camden	Triplicate site at Euston Road roadside automatic monitoring station	Roadside	**86.7**
HS2-000020BP4	SwissCot_CMS	LB Camden	Triplicate site on Finchley Road at Swiss Cottage kerbside automatic monitoring station	Kerbside	**66.6**
HS2-000020BN5	067	LB Ealing	Junction of Victoria Road and Old Oak Lane	Roadside	**58.5**
HS2-000020BN6	068	LB Ealing	Junction of Old Oak Common Lane and Wells	Roadside	**50.5**

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type	2016 annual mean NO_2 concentration ($\mu g/m^3$)
			House Road (telegraph pole June to November 2016)		
HS2-000020BQG			Junction of Old Oak Common Lane and Wells House Road (moved to lamppost at end of November 2016)	Roadside	**75.0**
HS2-000020BN7	069	LB Ealing	The Approach	Roadside	**67.6**
HS2-000020BN8	070	LB Ealing	Junction of Conway Drive and Wales Farm Road (telegraph pole June to November 2016)	Roadside	**60.2**
HS2-000020BQF			Junction of Conway Drive and Wales Farm Road (moved to lamppost at end of November 2016)	Roadside	**76.2**
HS2-000020BP7	-	LB Ealing	Triplicate site at Ealing Hangar Lane Gyratory roadside automatic monitoring station	Roadside	**72.3**
HS2-000020BP6	-	LB Ealing	Triplicate site at Ealing Western Avenue roadside automatic monitoring station	Roadside	**64.7**
HS2-000020BN2	062	LB Hammersmith and Fulham	Du Cane Road	Roadside	**61.2**
HS2-000020BN4	066	LB Hammersmith and Fulham	Old Oak Road	Roadside	**68.7**
HS2-000020BNR	106	LB Hammersmith and Fulham	Shepherd's Bush Common, Uxbridge Road	Background	**49.5**
HS2-000020BNX	114	LB Hammersmith and Fulham	A402 Goldhawk Road	Roadside	**48.5**
HS2-000020BPJ	132		Junction of Wulstan Street and	Roadside	**47.5**

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type	2016 annual mean NO_2 concentration ($\mu g/m^3$)
		LB Hammersmith and Fulham	Du Cane Road (telegraph pole June to November 2016)		
HS2-000020BQE			Junction of Wulstan Street and Du Cane Road (moved to lamppost at end of November 2016)	Background	**52.7**
HS2-000020BPP	138	LB Hammersmith and Fulham	A219 Scrubs Lane, South of Harrow Road	Roadside	**54.4**
HS2-000020BPT	158	LB Hammersmith and Fulham	A219 Scrubs Lane, north of Hythe Road	Roadside	**57.3**
HS2-000020BN1	060	RB Kensington and Chelsea	St Anns Villas	Roadside	**53.9**
HS2-000020BNF	085	RB Kensington and Chelsea	St Anns Road	Roadside	**50.6**
HS2-000020BPO	137	RB Kensington and Chelsea	Silchester Road	Roadside	**45.3**
HS2-000020BPQ	139	RB Kensington and Chelsea	Ladbroke Grove	Roadside	**45.2**
HS2-000020BPR	156	RB Kensington and Chelsea	Junction of Crowthorne Road and Bramley Road	Roadside	**49.2**
HS2-000020BPS	157	RB Kensington and Chelsea	B450 Ladbroke Grove, between A404 Harrow Road and Kensal Road	Roadside	**54.2**
HS2-000020BPA	-	RB Kensington and Chelsea	Triplicate site at Sion Manning School, St. Charles' Square at to the North Kensington urban background automatic monitoring station	Background	36.2
HS2-000020BPH	-	City of Westminster	Junction of St John's Wood Terrace and Wellington Road	Roadside	**49.0**
HS2-000020BPG	-	City of Westminster	St John's Wood Road	Roadside	**49.8**

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type	2016 annual mean NO_2 concentration ($\mu g/m^3$)
HS2-000020BNL	-	City of Westminster	Penfold Street	Background	**46.4**
HS2-000020BNK	-	City of Westminster	Edgware Road Underground Station	Roadside	**73.2**
HS2-000020BNJ	-	City of Westminster	Park Road, Hanover Gate	Roadside	**66.3**
HS2-000020BN0	-	City of Westminster	Ladbroke Grove	Roadside	**50.9**
HS2-000020BMY	-	City of Westminster	Junction of Blomfield Road and Edgware Road	Roadside	**64.4**
HS2-000020BMX	-	City of Westminster	A5205 Prince Albert Road	Roadside	**59.3**
HS2-000020BP1	-	City of Westminster	Brook Street	Roadside	**61.8**
HS2-000020BND	-	City of Westminster	Outer Circle Regent's Park at York Gate	Kerbside	**42.7**
HS2-000020BMD	-	City of Westminster	Park Crescent	Roadside	**74.2**
HS2-000020BME	-	City of Westminster	Great Portland Street at junction of A501 and A4201	Roadside	**96.7**
HS2-000020BP3	-	City of Westminster	Triplicate site at Marylebone Road kerbside automatic monitoring station	Kerbside	**86.8**

Notes:
Annual mean concentrations have been annualised and corrected for bias in accordance with Defra LAQM.TG(16). See Appendix C for details.
Exceedances of the NO_2 annual mean air quality standard of $40\mu g/m^3$ are shown in bold.

Table 6 – Full monthly NO_2 monitoring results for 2016

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type	NO2 concentration (µg/m3)							Number of months of data
					Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Mean	
HS2-000020BPM	-	LB Brent	Gorefield Place	Background	no data	37.5	32.9	37.7	49.8	51.9	42.0	5
HS2-000020BNS	-	LB Brent	Tower Road by Willesden Jewish Cemetery	Background	25.5	no data	32.7	35.8	41.3	55.8	38.2	5
HS2-000020BNG	-	LB Brent	Donnington Road	Roadside	40.0	28.9	48.1	43.1	53.3	65.1	46.4	6
HS2-000020BN3	-	LB Brent	High Street Harlesden	Roadside	61.8	57.9	59.3	60.6	74.0	89.2	67.1	6
HS2-000020BM5	002	LB Camden	Junction of St Chad's Street and Grays Inn Road	Roadside	51.0	47.6	62.2	66.2	66.6	67.5	60.2	6
HS2-000020BM6	003	LB Camden	Brunswick Square	Roadside	55.1	42.2	45.9	43.4	55.0	65.6	51.2	6
HS2-000020BM7	006	LB Camden	Chalton Street	Roadside	61.4	51.1	69.2	no data	74.2	82.9	67.8	5
HS2-000020BM8	007	LB Camden	Junction of Euston Square and Grafton Place	Roadside	58.8	54.9	68.4	68.0	67.0	88.0	67.5	6
HS2-000020BM9	008	LB Camden	Junction of Endsleigh Gardens and Upper Woburn Place	Roadside	50.2	50.6	65.1	58.1	63.2	71.9	59.9	6

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type	NO_2 concentration (µg/m³)							Number of months of data
					Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Mean	
HS2-000020BMA	012	LB Camden	Junction of Euston Road and Gower Street	Roadside	71.9	58.8	70.7	71.5	71.9	78.6	70.6	6
HS2-000020BMB	015	LB Camden	Whitfield Street	Background	42.6	36.1	no data	no data	60.1	64.6	50.9	4
HS2-000020BMC	016	LB Camden	Hampstead Road	Roadside	63.5	61.5	83.6	58.9	67.8	77.4	68.8	6
HS2-000020BMF	021	LB Camden	Junction of Polygon Road and Ossulston Street	Background	37.0	32.7	40.6	47.9	45.4	61.2	44.1	6
HS2-000020BMH	025	LB Camden	Nash Street	Background	40.5	39.4	no data	46.5	49.7	53.6	45.9	5
HS2-000020BMJ	026	LB Camden	Junction of Stanhope Street and Robert Street	Background	35.8	39.0	47.0	41.8	51.4	60.9	46.0	6
HS2-000020BMK	029	LB Camden	Junction of Plender Street and Bayham Street	Roadside	53.3	49.3	65.2	64.9	63.4	74.4	61.7	6
HS2-000020BML	031	LB Camden	Junction of Arlington Road and Mornington Crescent	Background	37.1	39.5	42.8	48.9	61.7	50.9	46.8	6
HS2-000020BMM	033	LB Camden	Junction of Bayham Street and Pratt Street	Roadside	70.9	69.7	69.9	73.0	73.2	80.1	72.8	6

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type	NO_2 concentration (µg/m³)							Number of months of data
					Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Mean	
HS2-000020BMN	034	LB Camden	Junction of Delancey Street and Albert Street	Roadside	38.2	42.5	42.8	43.0	51.9	60.5	46.5	6
HS2-000020BMQ	036	LB Camden	Junction of Parkway and Delancey Street	Roadside	50.6	50.1	86.4	63.9	58.6	63.6	62.2	6
HS2-000020BMR	038	LB Camden	Junction of Oval Road and Jamestown Road	Background	39.9	35.8	40.7	44.8	51.1	57.8	45.0	6
HS2-000020BMS	039	LB Camden	Junction of Chalk Farm Road and Castlehaven Road	Roadside	61.0	55.6	61.0	58.1	63.7	73.5	62.2	6
HS2-000020BMT	040	LB Camden	Junction of Camden Road and Camden Street	Kerbside	81.4	77.6	109.6	82.1	86.1	88.6	87.6	6
HS2-000020BMU	046	LB Camden	Junction of Southampton Road and Fleet Road	Roadside	44.4	36.2	44.3	44.1	54.0	52.0	45.8	6
HS2-000020BMV	048	LB Camden	Primrose Hill Road	Roadside	36.7	32.0	36.9	38.7	52.8	no data	39.4	5
HS2-000020BMW	049	LB Camden	Junction of Finchley Road and Hilgrove Road	Roadside	54.9	50.2	71.9	54.1	no data	68.1	59.8	5
HS2-000020BMZ	057	LB Camden	Junction of Finchley Road and Hendon Way	Roadside	77.5	80.9	92.7	89.8	90.2	135.0	94.3	6

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type	NO_2 concentration (µg/m³)							Number of months of data
					Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Mean	
HS2-000020BNA	076	LB Camden	Junction of Regent's Park Road and Rothwell Street	Roadside	42.3	33.9	40.5	34.5	50.9	56.4	43.1	6
HS2-000020BNB	079	LB Camden	Junction of Gloucester Gate Bridge and Park Village East	Roadside	45.0	41.5	58.8	50.8	50.7	60.7	51.2	6
HS2-000020BNC	082	LB Camden	Junction of Outer Circle and Gloucester Gate	Background	26.0	no data	32.4	38.6	39.3	44.8	36.2	5
HS2-000020BNH	090	LB Camden	Junction of Parkway and Albert Street	Kerbside	39.9	40.7	47.2	52.2	58.9	60.2	49.8	6
HS2-000020BNN	103	LB Camden	Lincoln's Inn Fields	Background	40.2	33.7	38.4	38.4	39.6	50.6	40.1	6
HS2-000020BNQ	105	LB Camden	Camley Street	Background	no data	41.3	58.3	45.3	51.3	66.4	52.5	5
HS2-000020BNY	115	LB Camden	Junction of Mill Lane and Hillfield Road	Roadside	42.7	37.4	no data	47.5	49.5	53.9	46.2	5
HS2-000020BNZ	116	LB Camden	Mansfield Road	Roadside	38.9	no data	36.2	34.5	41.2	48.9	40.0	5
HS2-000020BP0	117	LB Camden	Junction of Camden Road and Torriano Avenue	Roadside	55.2	51.5	63.6	56.9	67.2	73.0	61.2	6
HS2-000020BP2	119	LB Camden	Junction of Grays Inn Road and Holborn	Roadside	51.9	47.0	45.4	50.4	56.7	65.5	52.8	6

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type	NO_2 concentration (µg/m³)							Number of months of data
					Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Mean	
HS2-000020BPB	124	LB Camden	Camden High Street	Roadside	81.4	87.1	81.9	80.4	77.7	44.3	75.5	6
HS2-000020BPC	125	LB Camden	Castlehaven Road	Background	37.9	31.8	42.1	39.4	52.9	52.5	42.8	6
HS2-000020BPD	126	LB Camden	Prince of Wales Road	Roadside	30.8	24.7	38.8	36.4	42.8	51.5	37.5	6
HS2-000020BPE	128	LB Camden	Haverstock Hill	Roadside	52.0	43.9	46.4	40.2	50.1	62.6	49.2	6
HS2-000020BPF	129	LB Camden	Junction of Primrose Gardens and England's Lane	Background	36.8	31.6	38.8	42.6	50.7	55.4	42.6	6
HS2-000020BPX	159	LB Camden	Netley Street	Background	33.0	33.9	39.2	41.1	no data	55.8	40.6	5
HS2-000020BPY	162	LB Camden	Stanhope Street	Background	30.8	29.4	38.8	36.7	50.8	52.9	39.9	6
HS2-000020BPZ	163	LB Camden	Albany Street	Roadside	38.6	39.8	47.1	52.0	55.9	57.4	48.5	6
HS2-000020BQ0	164	LB Camden	Werrington Street	Background	no data	30.2	38.1	41.6	52.9	no data	40.7	4
HS2-000020BQ1	165	LB Camden	Polygon Road	Background	35.7	32.2	37.1	40.4	45.8	56.8	41.3	6
HS2-000020BQ2	166	LB Camden	Alexandra Place	Background	28.8	27.2	33.0	no data	45.5	48.9	36.7	5
HS2-000020BQ3	167	LB Camden	Harrington Square	Kerbside	45.9	48.6	65.4	57.2	50.4	56.6	54.0	6
HS2-000020BQ4	168	LB Camden	Junction of North Gower Street and Starcross Street	Background	39.1	37.3	42.9	39.2	53.3	62.1	45.6	6
HS2-000020BPW	169	LB Camden	Junction of Delancey Street and Arlington Road	Roadside	48.3	48.6	52.2	56.0	55.5	66.1	54.5	6

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type	NO2 concentration (µg/m3)							Number of months of data
					Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Mean	
HS2-000020BPU	180	LB Camden	Junction of Gower Street And Grafton Way	Roadside	60.5	50.4	68.1	54.9	62.5	67.6	60.7	6
HS2-000020BPV	181	LB Camden	Phoenix Road	Background	39.2	no data	40.2	43.5	48.3	53.4	44.9	5
HS2-000020BQ5	182	LB Camden	Adelaide Road	Roadside	no data	no data	no data	no data	no data	57.2	57.2	1
HS2-000020BQ6	183	LB Camden	Mornington Terrace	Background	no data	no data	no data	no data	no data	51.2	51.2	1
HS2-000020BQ7	184	LB Camden	Arlington Road	Background	no data	no data	no data	no data	no data	56.1	56.1	1
HS2-000020BQ8	185	LB Camden	Clarkson Row	Background	no data	no data	no data	no data	no data	no data	no data	0
HS2-000020BQ9	186	LB Camden	Park Village East	Background	no data	no data	no data	no data	no data	52.4	52.4	1
HS2-000020BQA	187	LB Camden	Eversholt street	Kerbside	no data	no data	no data	no data	no data	73.5	73.5	1
HS2-000020BQB	188	LB Camden	Junction of Harrington Street and Varndell Street	Background	no data	no data	no data	no data	no data	57.9	57.9	1
HS2-000020BQC	189	LB Camden	Junction of Robert Street and Hampstead Road	Kerbside	no data	no data	no data	no data	no data	61.0	61.0	1
HS2-000020BQD	190	LB Camden	Drummond Crescent	Background	no data	no data	no data	no data	no data	62.8	62.8	1
HS2-000020BP9	Blooms_CMS	LB Camden	Triplicate site in Russell Square at Bloomsbury urban background	Background	37.7	34.9	35.3	41.8	46.5	48.3	40.7	6

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type	NO_2 concentration ($\mu g/m^3$)							Number of months of data
					Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Mean	
			automatic monitoring station									
HS2-000020BP5	Euston_CMS	LB Camden	Triplicate site at Euston Road roadside automatic monitoring station	Roadside	83.1	82.8	100.0	77.4	89.7	90.4	87.2	6
HS2-000020BP4	SwissCot_CMS	LB Camden	Triplicate site on Finchley Road at Swiss Cottage kerbside automatic monitoring station	Kerbside	57.6	no data	79.3	72.5	77.7	74.5	72.3	5
HS2-000020BN5	067	LB Ealing	Junction of Victoria Road and Old Oak Lane	Roadside	48.2	54.6	58.2	58.5	57.1	77.8	59.1	6
HS2-000020BN6	068	LB Ealing	Junction of Old Oak Common Lane and Wells House Road (telegraph pole June to November 2016)	Roadside	29.0	46.2	22.4	47.8	81.7	no data	45.4	5
HS2-000020BQG			Junction of Old Oak Common Lane and Wells House Road (moved to lamppost at end of November 2016)	Roadside	no data	no data	no data	no data	no data	78.5	78.5	1
HS2-000020BN7	069	LB Ealing	The Approach	Roadside	66.5	70.5	66.9	48.8	76.6	80.6	68.3	6
HS2-000020BN8	070	LB Ealing	Junction of Conway Drive and Wales	Roadside	51.9	53.4	44.9	51.4	69.2	no data	54.1	5

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type	NO_2 concentration ($\mu g/m^3$)							Number of months of data
					Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Mean	
			Farm Road (telegraph pole June to November 2016)									
HS2-000020BQF			Junction of Conway Drive and Wales Farm Road (moved to lamppost at end of November 2016)	Roadside	no data	no data	no data	no data	no data	79.7	79.7	1
HS2-000020BP7	-	LB Ealing	Triplicate site at Ealing Hangar Lane Gyratory roadside automatic monitoring station	Roadside	65.9	72.7	78.9	61.2	76.5	83.2	73.1	6
HS2-000020BP6	-	LB Ealing	Triplicate site at Ealing Western Avenue roadside automatic monitoring station	Roadside	52.9	54.9	72.6	60.2	73.1	78.5	65.4	6
HS2-000020BN2	062	LB Hammersmith and Fulham	Du Cane Road	Roadside	60.5	54.3	55.5	55.6	70.5	78.7	62.5	6
HS2-000020BN4	066	LB Hammersmith and Fulham	Old Oak Road	Roadside	54.9	57.8	64.7	62.7	no data	84.4	64.9	5
HS2-000020BNR	106	LB Hammersmith and Fulham	Shepherd's Bush Common, Uxbridge Road	Background	43.6	44.1	39.3	50.4	52.6	no data	46.0	5

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type	NO_2 concentration ($\mu g/m^3$)							Number of months of data
					Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Mean	
HS2-000020BNX	114	LB Hammersmith and Fulham	A402 Goldhawk Road	Roadside	40.5	39.1	41.9	45.4	53.3	no data	44.0	5
HS2-000020BPJ	132	LB Hammersmith and Fulham	Junction of Wulstan Street and Du Cane Road (telegraph pole June to November 2016)	Roadside	43.7	35.7	40.1	43.5	53.6	no data	43.3	5
HS2-000020BQE			Junction of Wulstan Street and Du Cane Road (moved to lamppost at end of November 2016)	Background	no data	no data	no data	no data	no data	56.4	56.4	1
HS2-000020BPP	138	LB Hammersmith and Fulham	A219 Scrubs Lane, South of Harrow Road	Roadside	50.5	46.0	57.2	49.1	57.5	72.8	55.5	6
HS2-000020BPT	158	LB Hammersmith and Fulham	A219 Scrubs Lane, north of Hythe Road	Roadside	41.7	47.0	66.7	56.9	66.2	72.4	58.5	6
HS2-000020BN1	060	RB Kensington and Chelsea	St Anns Villas	Roadside	46.6	42.6	46.5	54.8	69.3	70.6	55.1	6
HS2-000020BNF	085	RB Kensington and Chelsea	St Anns Road	Roadside	43.0	40.4	42.9	no data	53.3	no data	44.9	4
HS2-000020BPO	137	RB Kensington and Chelsea	Silchester Road	Roadside	38.4	36.3	44.2	45.0	49.8	64.0	46.3	6
HS2-000020BPQ	139	RB Kensington and Chelsea	Ladbroke Grove	Roadside	42.6	35.3	42.2	53.0	49.0	54.7	46.1	6

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type	NO_2 concentration (µg/m³)							Number of months of data
					Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Mean	
HS2-000020BPR	156	RB Kensington and Chelsea	Junction of Crowthorne Road and Bramley Road	Roadside	45.2	41.8	58.4	53.5	48.2	54.3	50.2	6
HS2-000020BPS	157	RB Kensington and Chelsea	B450 Ladbroke Grove, between A404 Harrow Road and Kensal Road	Roadside	43.7	41.6	73.6	54.9	55.8	62.6	55.4	6
HS2-000020BPA	-	RB Kensington and Chelsea	Triplicate site at Sion Manning School, St. Charles' Square at to the North Kensington urban background automatic monitoring station	Background	26.2	26.7	30.5	42.1	45.9	55.3	37.8	6
HS2-000020BPH	-	City of Westminster	Junction of St John's Wood Terrace and Wellington Road	Roadside	no data	43.4	51.5	42.1	no data	60.7	49.4	4
HS2-000020BPG	-	City of Westminster	St John's Wood Road	Roadside	36.5	39.4	47.6	54.6	57.6	66.8	50.4	6
HS2-000020BNL	-	City of Westminster	Penfold Street	Background	41.6	39.0	47.7	43.8	52.6	63.0	47.9	6
HS2-000020BNK	-	City of Westminster	Edgware Road Underground Station	Roadside	68.5	60.0	73.8	77.2	87.5	76.9	74.0	6
HS2-000020BNJ	-	City of Westminster	Park Road, Hanover Gate	Roadside	63.1	57.1	89.0	57.7	67.0	68.9	67.1	6

Site ID	Site ID used in previously published material	Local authority	Site location	Site location type	NO_2 concentration ($\mu g/m^3$)							Number of months of data
					Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Mean	
HS2-000020BN0	-	City of Westminster	Ladbroke Grove	Roadside	41.7	40.9	59.8	51.0	55.0	60.0	51.4	6
HS2-000020BMY	-	City of Westminster	Junction of Blomfield Road and Edgware Road	Roadside	56.1	54.0	81.8	58.0	76.2	64.6	65.1	6
HS2-000020BMX	-	City of Westminster	A5205 Prince Albert Road	Roadside	52.7	50.7	81.1	51.9	62.7	60.8	60.0	6
HS2-000020BP1	-	City of Westminster	Brook Street	Roadside	62.3	54.2	53.1	60.1	69.5	77.5	62.8	6
HS2-000020BND	-	City of Westminster	Outer Circle Regent's Park at York Gate	Kerbside	35.8	35.8	45.0	39.4	49.1	49.9	42.5	6
HS2-000020BMD	-	City of Westminster	Park Crescent	Roadside	67.5	63.4	81.3	76.2	89.2	71.9	74.9	6
HS2-000020BME	-	City of Westminster	Great Portland Street at junction of A501 and A4201	Roadside	81.7	74.4	126.7	91.6	100.6	110.6	97.6	6
HS2-000020BP3	-	City of Westminster	Triplicate site at Marylebone Road kerbside automatic monitoring station	Kerbside	91.3	89.2	84.4	79.0	83.6	91.0	86.4	6

Notes:
Table contains raw data as presented in laboratory reports. Mean concentrations have not been annualised or bias corrected and are not directly comparable to the NO_2 annual mean air quality standard of $40\mu g/m^3$.

Appendix E – Comparison of 2016 annual mean NO2 diffusion tube results and the predicted NO2 annual mean concentrations from the ES

Table 7 presents a comparison of the 2016 annual mean NO2 diffusion tube results and the predicted 2012 and 2017 NO2 annual mean concentrations from the ES for the scenario without the Proposed Scheme in place.

Table 7 – Comparison of the 2016 annual mean NO2 diffusion tube results and the predicted 2012 and 2017 NO2 annual mean concentrations from the ES

Site ID	Site ID used in previously published material	Local authority	Site location	Site purpose	Annual mean NO2, 2016 (µg/m3)	Nearest ES assessed receptor ID[19]	Modelled annual mean NO2 2012 (µg/m3)	Modelled annual mean NO2 2017 (without scheme, µg/m3)	Distance of diffusion tube to nearest ES assessed receptor (metres)	difference monitored vs 2017 modelled	% diff 2017
HS2-000020BPM	-	LB Brent	Gorefield Place	Background not affected by scheme	38.0	n/a	n/a	n/a	n/a	n/a	n/a
HS2-000020BNS	-	LB Brent	Tower Road by Willesden Jewish Cemetery	Background not affected by scheme	34.1	n/a	n/a	n/a	n/a	n/a	n/a
HS2-000020BNG	-	LB Brent	Donnington Road	Predicted significant effect	45.5	4-120	53.7	46.0	14	-0.5	-1%

[19] A comparison of monitoring results with ES modelled receptors was only undertaken where a modelled receptor was within 100 metres of the monitoring site. Where multiple monitoring sites with in the vicinity of the monitoring site the closed ES receptor was selected.

Site ID	Site ID used in previously published material	Local authority	Site location	Site purpose	Annual mean NO_2, 2016 ($\mu g/m^3$)	Nearest ES assessed receptor ID[19]	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (metres)	difference monitored vs 2017 modelled	% diff 2017
HS2-000020BN3	-	LB Brent	High Street Harlesden	Predicted significant effect	65.7	4-209	68.7	58.5	47	+7.2	+11%
HS2-000020BM5	002	LB Camden	Junction of St Chad's Street and Grays Inn Road	Predicted significant effect	59.8	1-204	86.4	75.6	5	-15.8	-26%
HS2-000020BM6	003	LB Camden	Brunswick Square	Predicted significant effect	50.4	1-7	61.1	52.5	67	-2.1	-4%
HS2-000020BM7	006	LB Camden	Chalton Street	Predicted significant effect	66.8	1-1	104.8	90.1	14	-23.2	-35%
HS2-000020BM8	007	LB Camden	Junction of Euston Square and Grafton Place	Predicted significant effect	66.9	1-178	91.7	81.0	29	-14.1	-21%
HS2-000020BM9	008	LB Camden	Junction of Endsleigh Gardens and Upper Woburn Place	Predicted significant effect	59.5	1-47	93.6	82.3	16	-22.8	-38%
HS2-000020BMA	012	LB Camden	Junction of Euston Road and Gower Street	Predicted significant effect	70.1	1-170	99.3	80.0	0	-9.9	-14%

Site ID	Site ID used in previously published material	Local authority	Site location	Site purpose	Annual mean NO_2, 2016 ($\mu g/m^3$)	Nearest ES assessed receptor ID[19]	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (metres)	difference monitored vs 2017 modelled	% diff 2017
HS2-000020BMB	015	LB Camden	Whitfield Street	Predicted significant effect	46.7	1-287	63.6	53.4	11	-6.7	-14%
HS2-000020BMC	016	LB Camden	Hampstead Road	Predicted significant effect	68.0	1-165	83.1	66.6	9	+1.4	+2%
HS2-000020BMF	021	LB Camden	Junction of Polygon Road and Ossulston Street	Predicted significant effect	42.4	1-79	50.4	43.4	0	-1.0	-2%
HS2-000020BMH	025	LB Camden	Nash Street	Predicted significant effect	42.5	1-261	54.5	46.4	7	-3.9	-9%
HS2-000020BMJ	026	LB Camden	Junction of Stanhope Street and Robert Street	Predicted significant effect	44.1	1-257	58.6	50.1	24	-6.0	-14%
HS2-000020BMK	029	LB Camden	Junction of Plender Street and Bayham Street	Predicted significant effect	60.5	1-298	61.4	53.5	9	+7.0	+12%
HS2-000020BML	031	LB Camden	Junction of Arlington Road and Mornington Crescent	Predicted significant effect	44.9	1-9	52.0	45.8	2	-0.9	-2%

Site ID	Site ID used in previously published material	Local authority	Site location	Site purpose	Annual mean NO_2, 2016 ($\mu g/m^3$)	Nearest ES assessed receptor ID[19]	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (metres)	difference monitored vs 2017 modelled	% diff 2017
HS2-000020BMM	033	LB Camden	Junction of Bayham Street and Pratt Street	Predicted significant effect	71.4	2-72	69.4	57.2	6	+14.2	+20%
HS2-000020BMN	034	LB Camden	Junction of Delancey Street and Albert Street	Predicted significant effect	45.6	1-246	55.8	46.7	4	-1.2	-3%
HS2-000020BMQ	036	LB Camden	Junction of Parkway and Delancey Street	Predicted significant effect	61.0	2-103	70.5	58.4	22	+2.6	+4%
HS2-000020BMR	038	LB Camden	Junction of Oval Road and Jamestown Road	Predicted significant effect	43.2	2-98	45.5	39.1	7	+4.1	+9%
HS2-000020BMS	039	LB Camden	Junction of Chalk Farm Road and Castlehaven Road	Predicted significant effect	61.0	2-8	64.3	53.2	5	+7.8	+13%
HS2-000020BMT	040	LB Camden	Junction of Camden Road and Camden Street	Predicted significant effect	88.1	2-38	79.3	63.4	21	+24.8	+28%
HS2-000020BMU	046	LB Camden	Junction of Southampton Road and Fleet Road	Predicted significant effect	45.0	3-153	52.4	46.3	14	-1.3	-3%

Site ID	Site ID used in previously published material	Local authority	Site location	Site purpose	Annual mean NO_2, 2016 ($\mu g/m^3$)	Nearest ES assessed receptor ID[19]	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (metres)	difference monitored vs 2017 modelled	% diff 2017
HS2-000020BMV	048	LB Camden	Primrose Hill Road	Predicted significant effect	43.4	3-213	55.2	46.7	32	-3.3	-8%
HS2-000020BMW	049	LB Camden	Junction of Finchley Road and Hilgrove Road	Predicted significant effect	63.7	3-60	64.9	53.6	8	+10.1	+16%
HS2-000020BMZ	057	LB Camden	Junction of Finchley Road and Hendon Way	Predicted significant effect	93.4	3-96	70.4	56.4	8	+37.0	+40%
HS2-000020BNA	076	LB Camden	Junction of Regent's Park Road and Rothwell Street	Predicted significant effect	42.3	3-193	47.4	39.4	2	+2.9	+7%
HS2-000020BNB	079	LB Camden	Junction of Gloucester Gate Bridge and Park Village East	Predicted significant effect	50.2	1-284	53.4	45.5	19	+4.7	+9%
HS2-000020BNC	082	LB Camden	Junction of Outer Circle and Gloucester Gate	Predicted significant effect	32.4	1-70	49.4	42.7	22	-10.3	-32%
HS2-000020BNH	090	LB Camden	Junction of Parkway and Albert Street	Predicted significant effect	49.6	2-85	61.6	51.3	18	-1.6	-3%

Site ID	Site ID used in previously published material	Local authority	Site location	Site purpose	Annual mean NO_2, 2016 ($\mu g/m^3$)	Nearest ES assessed receptor ID[19]	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (metres)	difference monitored vs 2017 modelled	% diff 2017
HS2-000020BNN	103	LB Camden	Lincoln's Inn Fields	Background not affected by scheme	38.6	n/a	n/a	n/a	n/a	n/a	n/a
HS2-000020BNQ	105	LB Camden	Camley Street	Background not affected by scheme	47.5	n/a	n/a	n/a	n/a	n/a	n/a
HS2-000020BNY	115	LB Camden	Junction of Mill Lane and Hillfield Road	Roadside not affected by scheme	43.8	n/a	n/a	n/a	n/a	n/a	n/a
HS2-000020BNZ	116	LB Camden	Mansfield Road	Roadside not affected by scheme	36.4	n/a	n/a	n/a	n/a	n/a	n/a
HS2-000020BP0	117	LB Camden	Junction of Camden Road and Torriano Avenue	Roadside not affected by scheme	60.6	n/a	n/a	n/a	n/a	n/a	n/a
HS2-000020BP2	119	LB Camden	Junction of Grays Inn Road and Holborn	Roadside not affected by scheme	52.0	n/a	n/a	n/a	n/a	n/a	n/a
HS2-000020BPB	124	LB Camden	Camden High Street	Predicted significant effect	74.6	2-63	62.1	50.7	68	+24.0	+32%

Site ID	Site ID used in previously published material	Local authority	Site location	Site purpose	Annual mean NO_2, 2016 ($\mu g/m^3$)	Nearest ES assessed receptor ID[19]	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (metres)	difference monitored vs 2017 modelled	% diff 2017
HS2-000020BPC	125	LB Camden	Castlehaven Road	Predicted significant effect	41.0	2-93	48.8	42.3	29	-1.2	-3%
HS2-000020BPD	126	LB Camden	Prince of Wales Road	Predicted significant effect	36.8	No assessed receptor location nearby	n/a	n/a	n/a	n/a	n/a
HS2-000020BPE	128	LB Camden	Haverstock Hill	Predicted significant effect	48.3	3-41	50.5	42.7	25	+5.6	+12%
HS2-000020BPF	129	LB Camden	Junction of Primrose Gardens and England's Lane	Predicted significant effect	40.9	3-130	46.3	40.7	8	+0.2	+1%
HS2-000020BPX	159	LB Camden	Netley Street	Predicted significant effect	41.5	1-292	83.2	66.6	87	-25.1	-61%
HS2-000020BPY	162	LB Camden	Stanhope Street	Predicted significant effect	38.3	1-254	51.5	43.5	97	-5.3	-14%
HS2-000020BPZ	163	LB Camden	Albany Street	Predicted significant effect	47.4	1-283	54.1	46.3	32	+1.2	+2%
HS2-000020BQ0	164	LB Camden	Werrington Street	Predicted significant effect	41.8	1-191	56.7	50.1	82	-8.4	-20%

Site ID	Site ID used in previously published material	Local authority	Site location	Site purpose	Annual mean NO_2, 2016 ($\mu g/m^3$)	Nearest ES assessed receptor ID[19]	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (metres)	difference monitored vs 2017 modelled	% diff 2017
HS2-000020BQ1	165	LB Camden	Polygon Road	Predicted significant effect	39.7	1-208	50.2	43.1	57	-3.4	-9%
HS2-000020BQ2	166	LB Camden	Alexandra Place	Predicted significant effect	34.8	No assessed receptor location nearby	n/a	n/a	n/a	n/a	n/a
HS2-000020BQ3	167	LB Camden	Harrington Square	Predicted significant effect	53.8	1-134	61.5	52.2	38	+1.6	+3%
HS2-000020BQ4	168	LB Camden	Junction of North Gower Street and Starcross Street	Predicted significant effect	43.8	1-166	65.4	54.4	39	-10.7	-24%
HS2-000020BPW	169	LB Camden	Junction of Delancey Street and Arlington Road	Predicted significant effect	53.4	1-58	56.1	46.9	27	+6.5	+12%
HS2-000020BPU	180	LB Camden	Junction of Gower Street And Grafton Way	Predicted significant effect	59.7	1-4	76.1	62.1	4	-2.4	-4%
HS2-000020BPV	181	LB Camden	Phoenix Road	Predicted significant effect	40.1	1-269	57.4	51.3	51	-11.2	-28%

Site ID	Site ID used in previously published material	Local authority	Site location	Site purpose	Annual mean NO_2, 2016 ($\mu g/m^3$)	Nearest ES assessed receptor ID[19]	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (metres)	difference monitored vs 2017 modelled	% diff 2017
HS2-000020BQ5	182	LB Camden	Adelaide Road	Predicted significant effect	54.6	No assessed receptor location nearby	n/a	n/a	n/a	n/a	n/a
HS2-000020BQ6	183	LB Camden	Mornington Terrace	Predicted significant effect	47.8	1-246	55.8	46.7	100	+1.1	+2%
HS2-000020BQ7	184	LB Camden	Arlington Road	Predicted significant effect	52.4	1-198	51.9	44.1	23	+8.3	+16%
HS2-000020BQ8	185	LB Camden	Clarkson Row	Predicted significant effect	0.0	No assessed receptor location nearby	n/a	n/a	n/a	n/a	n/a
HS2-000020BQ9	186	LB Camden	Park Village East	Predicted significant effect	49.0	No assessed receptor location nearby	n/a	n/a	n/a	n/a	n/a
HS2-000020BQA	187	LB Camden	Eversholt street	Predicted significant effect	71.3	1-192	57.7	51.2	13	+20.1	+28%

Site ID	Site ID used in previously published material	Local authority	Site location	Site purpose	Annual mean NO_2, 2016 ($\mu g/m^3$)	Nearest ES assessed receptor ID[19]	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (metres)	difference monitored vs 2017 modelled	% diff 2017
HS2-000020BQB	188	LB Camden	Junction of Harrington Street and Varndell Street	Predicted significant effect	54.1	1-322	63.6	50.0	5	+4.1	+8%
HS2-000020BQC	189	LB Camden	Junction of Robert Street and Hampstead Road	Predicted significant effect	59.3	1-71	63.1	53.5	32	+5.8	+10%
HS2-000020BQD	190	LB Camden	Drummond Crescent	Predicted significant effect	58.7	1-186	66.7	56.8	58	+1.9	+3%
HS2-000020BP9	Blooms_CMS	LB Camden	Triplicate site in Russell Square at Bloomsbury urban background automatic monitoring station	Triplicate colocation at Camden Bloomsbury background site	39.2	1-276	n/a	n/a	90	n/a	n/a
HS2-000020BP5	Euston_CMS	LB Camden	Triplicate site at Euston Road roadside automatic monitoring station	Triplicate colocation at Camden Euston Road roadside site	86.7	1-1	104.8	90.1	32	-3.4	-4%

Site ID	Site ID used in previously published material	Local authority	Site location	Site purpose	Annual mean NO_2, 2016 ($\mu g/m^3$)	Nearest ES assessed receptor ID[19]	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (metres)	difference monitored vs 2017 modelled	% diff 2017
HS2-000020BP4	SwissCot_CMS	LB Camden	Triplicate site on Finchley Road at Swiss Cottage kerbside automatic monitoring station	Triplicate colocation at Camden Swiss Cottage kerbside site	66.6	n/a	n/a	n/a	n/a	n/a	n/a
HS2-000020BN5	067	LB Ealing	Junction of Victoria Road and Old Oak Lane	Predicted significant effect	58.5	4-12	64.6	52.6	3	+5.8	+10%
HS2-000020BN6	068	LB Ealing	Junction of Old Oak Common Lane and Wells House Road (telegraph pole June to November 2016)	Predicted significant effect	50.5	4-93	56.2	47.1	12	+3.4	+7%
HS2-000020BQG			Junction of Old Oak Common Lane and Wells House Road (moved to lamppost at end of November 2016)		75.0	4-143	52.6	45.2	6	+29.8	+40%

Site ID	Site ID used in previously published material	Local authority	Site location	Site purpose	Annual mean NO_2, 2016 ($\mu g/m^3$)	Nearest ES assessed receptor ID[19]	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (metres)	difference monitored vs 2017 modelled	% diff 2017
HS2-000020BN7	069	LB Ealing	The Approach	Predicted significant effect	67.6	4-152	83.3	69.6	20	-2.0	-3%
HS2-000020BN8	070	LB Ealing	Junction of Conway Drive and Wales Farm Road (telegraph pole June to November 2016)	Predicted significant effect	60.2	4-19	66.5	57.7	30	+2.5	+4%
HS2-000020BQF			Junction of Conway Drive and Wales Farm Road (moved to lamppost at end of November 2016)		76.2	4-55	63.7	55.2	36	+21.0	+28%
HS2-000020BP7	-	LB Ealing	Triplicate site at Ealing Hangar Lane Gyratory roadside automatic monitoring station	Triplicate colocation at Ealing Hanger Lane roadside site	72.3	5-49	n/a	n/a	102	n/a	n/a

Site ID	Site ID used in previously published material	Local authority	Site location	Site purpose	Annual mean NO_2, 2016 ($\mu g/m^3$)	Nearest ES assessed receptor ID[19]	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (metres)	difference monitored vs 2017 modelled	% diff 2017
HS2-000020BP6	-	LB Ealing	Triplicate site at Ealing Western Avenue roadside automatic monitoring station	Triplicate colocation at Ealing Western Avenue roadside site	64.7	5-35	n/a	n/a	14	n/a	n/a
HS2-000020BN2	062	LB Hammersmith and Fulham	Du Cane Road	Predicted significant effect	61.2	4-204	72.1	61.1	12	+0.1	0%
HS2-000020BN4	066	LB Hammersmith and Fulham	Old Oak Road	Predicted significant effect	68.7	4-155	88.7	76.0	18	-7.3	-11%
HS2-000020BNR	106	LB Hammersmith and Fulham	Shepherd's Bush Common, Uxbridge Road	Background not affected by scheme	49.5	n/a	n/a	n/a	n/a	n/a	n/a
HS2-000020BNX	114	LB Hammersmith and Fulham	A402 Goldhawk Road	Roadside not affected by scheme	48.5	n/a	n/a	n/a	n/a	n/a	n/a
HS2-000020BPJ	132	LB Hammersmith and Fulham	Junction of Wulstan Street and Du Cane Road (telegraph	Predicted significant effect	47.5	4-262	48.1	40.8	19	+6.7	+14%

Site ID	Site ID used in previously published material	Local authority	Site location	Site purpose	Annual mean NO_2, 2016 ($\mu g/m^3$)	Nearest ES assessed receptor ID[19]	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (metres)	difference monitored vs 2017 modelled	% diff 2017
			pole June to November 2016)								
HS2-000020BQE			Junction of Wulstan Street and Du Cane Road (moved to lamppost at end of November 2016)		52.7	4-262	48.1	40.8	8	+11.8	+22%
HS2-000020BPP	138	LB Hammersmith and Fulham	A219 Scrubs Lane, South of Harrow Road	Predicted significant effect	54.4	4-209	68.7	58.5	57	-4.1	-8%
HS2-000020BPT	158	LB Hammersmith and Fulham	A219 Scrubs Lane, north of Hythe Road	Predicted significant effect	57.3	4-206	64.8	55.3	59	+2.0	+4%
HS2-000020BN1	060	RB Kensington and Chelsea	St Anns Villas	Predicted significant effect	53.9	4-193	62.3	53.2	4	+0.7	+1%
HS2-000020BNF	085	RB Kensington and Chelsea	St Anns Road	Predicted significant effect	50.6	4-182	59.5	50.8	1	-0.2	0%

Site ID	Site ID used in previously published material	Local authority	Site location	Site purpose	Annual mean NO_2, 2016 ($\mu g/m^3$)	Nearest ES assessed receptor ID[19]	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (metres)	difference monitored vs 2017 modelled	% diff 2017
HS2-000020BPO	137	RB Kensington and Chelsea	Silchester Road	Predicted significant effect	45.3	4-104	70.2	60.2	19	-14.8	-33%
HS2-000020BPQ	139	RB Kensington and Chelsea	Ladbroke Grove	Predicted significant effect	45.2	4-217	61.5	51.7	9	-6.5	-14%
HS2-000020BPR	156	RB Kensington and Chelsea	Junction of Crowthorne Road and Bramley Road	Predicted significant effect	49.2	4-173	75.2	63.8	33	-14.7	-30%
HS2-000020BPS	157	RB Kensington and Chelsea	B450 Ladbroke Grove, between A404 Harrow Road and Kensal Road	Predicted significant effect	54.2	4-223	50.5	43.1	13	+11.1	+21%
HS2-000020BPA	-	RB Kensington and Chelsea	Triplicate site at Sion Manning School, St. Charles' Square at to the North Kensington urban background automatic monitoring station	Triplicate colocation at Kensington and Chelsea North Kensington background site	36.2	4-121	n/a	n/a	84	n/a	n/a

Site ID	Site ID used in previously published material	Local authority	Site location	Site purpose	Annual mean NO_2, 2016 ($\mu g/m^3$)	Nearest ES assessed receptor ID[19]	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (metres)	difference monitored vs 2017 modelled	% diff 2017
HS2-000020BPH	-	City of Westminster	Junction of St John's Wood Terrace and Wellington Road	Predicted significant effect	49.0	1-62	61.5	51.5	8	-2.4	-5%
HS2-000020BPG	-	City of Westminster	St John's Wood Road	Predicted significant effect	49.8	1-48	60.7	53.0	66	-3.2	-6%
HS2-000020BNL	-	City of Westminster	Penfold Street	Background not affected by scheme	46.4	n/a	n/a	n/a	n/a	n/a	n/a
HS2-000020BNK	-	City of Westminster	Edgware Road Underground Station	Predicted significant effect	73.2	1-25	100.3	86.8	2	-13.6	-19%
HS2-000020BNJ	-	City of Westminster	Park Road, Hanover Gate	Predicted significant effect	66.3	1-242	69.7	57.4	10	+9.0	+14%
HS2-000020BNo	-	City of Westminster	Ladbroke Grove	Predicted significant effect	50.9	4-225	77.1	66.2	14	-15.4	-30%
HS2-000020BMY	-	City of Westminster	Junction of Blomfield Road and Edgware Road	Predicted significant effect	64.4	4-65	64.2	54.1	13	+10.3	+16%

Site ID	Site ID used in previously published material	Local authority	Site location	Site purpose	Annual mean NO_2, 2016 ($\mu g/m^3$)	Nearest ES assessed receptor ID[19]	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (metres)	difference monitored vs 2017 modelled	% diff 2017
HS2-000020BMX	-	City of Westminster	A5205 Prince Albert Road	Predicted significant effect	59.3	1-141	65.1	55.7	24	+3.6	+6%
HS2-000020BP1	-	City of Westminster	Brook Street	Roadside not affected by scheme	61.8	n/a	n/a	n/a	n/a	n/a	n/a
HS2-000020BND	-	City of Westminster	Outer Circle Regent's Park at York Gate	Predicted significant effect	42.7	1-281	61.1	52.0	15	-9.3	-22%
HS2-000020BMD	-	City of Westminster	Park Crescent	Predicted significant effect	74.2	1-42	89.6	75.7	49	-1.5	-2%
HS2-000020BME	-	City of Westminster	Great Portland Street at junction of A501 and A4201	Predicted significant effect	96.7	1-279	86.1	72.8	17	+23.9	+25%
HS2-000020BP3	-	City of Westminster	Triplicate site at Marylebone Road kerbside automatic monitoring station	Triplicate colocation at Westminster Marylebone Road roadside site	86.8	n/a	n/a	n/a	n/a	n/a	n/a

Appendix F - Maps of HS2 Ltd. monitoring survey locations and results

WORK IN PROGRESS

HS2-000020BPM
HS2-000020BNG
HS2-000020BNS
HS2-000020BN0
HS2-000020BPS
HS2-000020BPQ
HS2-000020BPA
HS2-000020BN3
HS2-000020BPP
HS2-000020BPT
HS2-000020BPR
HS2-000020BPO
HS2-000020BNF

Barnet London Boro
Camden London Boro
Brent London Boro
Kensington and Chelsea London Boro
City of Westminster London Boro
Hammersmith and Fulham London Boro
Ealing London Boro

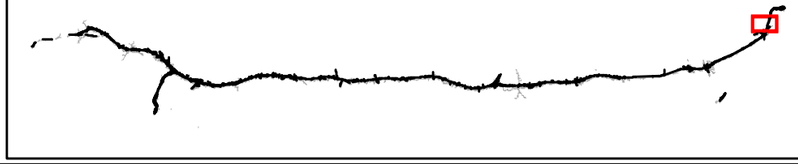
Cricklewood Broadway
Shoot Up Hill
Kilburn High Road
Maida Vale
Willesden Lane
Dudden Hill Lane
High Road
Harrow Road
Ladbroke Grove
Westway
Kensal Green
Kensal Rise
Kensal Town
West Kilburn
North Kensington
Willesden
Willesden Green
Brondesbury
Brondesbury Park
Kilburn
Dollis Hill
Neasden and Stonebridge
Old Common
Harlesden
Notting Hill

Legend

NO_2 Monitoring Positions
2016 Results
- < 40 µg/m³ (below AQS)
- >= 40 µg/m³ (above AQS)

Work Sections Centreline
Consolidated Land Boundary
District Borough Unitary Boundaries

Map Extent of route



Map Number
HS2-EV-REP-000-000030

Map Name
NO_2 Monitoring Positions
London Borough of Brent

(1 of 6)

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

Scale at A3: 1:15,000

0 150 300 450 600
Metres

Doc Number:

Date: 29/04/19

WORK IN PROGRESS

HS2-000020BP0
HS2-000020BNZ
HS2-000020BPC
HS2-000020BPD
HS2-000020BMU
HS2-000020BNQ
HS2-000020BMT
HS2-000020BMF
HS2-000020BM5
HS2-000020BP2
HS2-000020BMS
HS2-000020BMM
HS2-000020BMK
HS2-000020BPB
HS2-000020BQ0
HS2-000020BP5
HS2-000020BM7
HS2-000020BM6
HS2-000020BPW
HS2-000020BPV
HS2-000020BM8
HS2-000020BML
HS2-000020BQD
HS2-000020BMR
HS2-000020BQ3
HS2-000020BP9
HS2-000020BNN
HS2-000020BQ7
HS2-000020BM9
HS2-000020BNH
HS2-000020BPE
HS2-000020BQ6
HS2-000020BMQ
HS2-000020BPY
HS2-000020BQB
HS2-000020BPF
HS2-000020BNB
HS2-000020BMA
HS2-000020BQ5
HS2-000020BQ9
HS2-000020BQ4
HS2-000020BQC
HS2-000020BPX
HS2-000020BPU
HS2-000020BNA
HS2-000020BNC
HS2-000020BMV
HS2-000020BMJ
HS2-000020BMC
HS2-000020BPZ
HS2-000020BMH
HS2-000020BMB
HS2-000020BME
HS2-000020BMD
HS2-000020BP4
HS2-000020BMZ
HS2-000020BMW
HS2-000020BND
HS2-000020BP3
HS2-000020BQ2
HS2-000020BMX
HS2-000020BPH
HS2-000020BNJ
HS2-000020BP1
HS2-000020BPG
HS2-000020BNY
HS2-000020BNL
HS2-000020BNK

Haringey London Boro
Islington London Boro
Hackney London Boro
City and County of the City of London
Camden London Boro
City of Westminster London Boro
Barnet London Boro
Brent London Boro

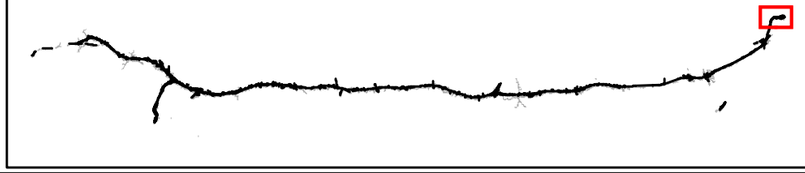
Legend

NO_2 Monitoring Positions
2016 Results
- < 40 µg/m³ (below AQS)
- >= 40 µg/m³ (above AQS)

Work Sections Centreline
Consolidated Land Boundary
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 Extent of route



Map Number
HS2-EV-REP-000-000030

Map Name
NO_2 Monitoring Positions
London Borough of Camden

(2 of 6)

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

Scale at A3: 1:20,000

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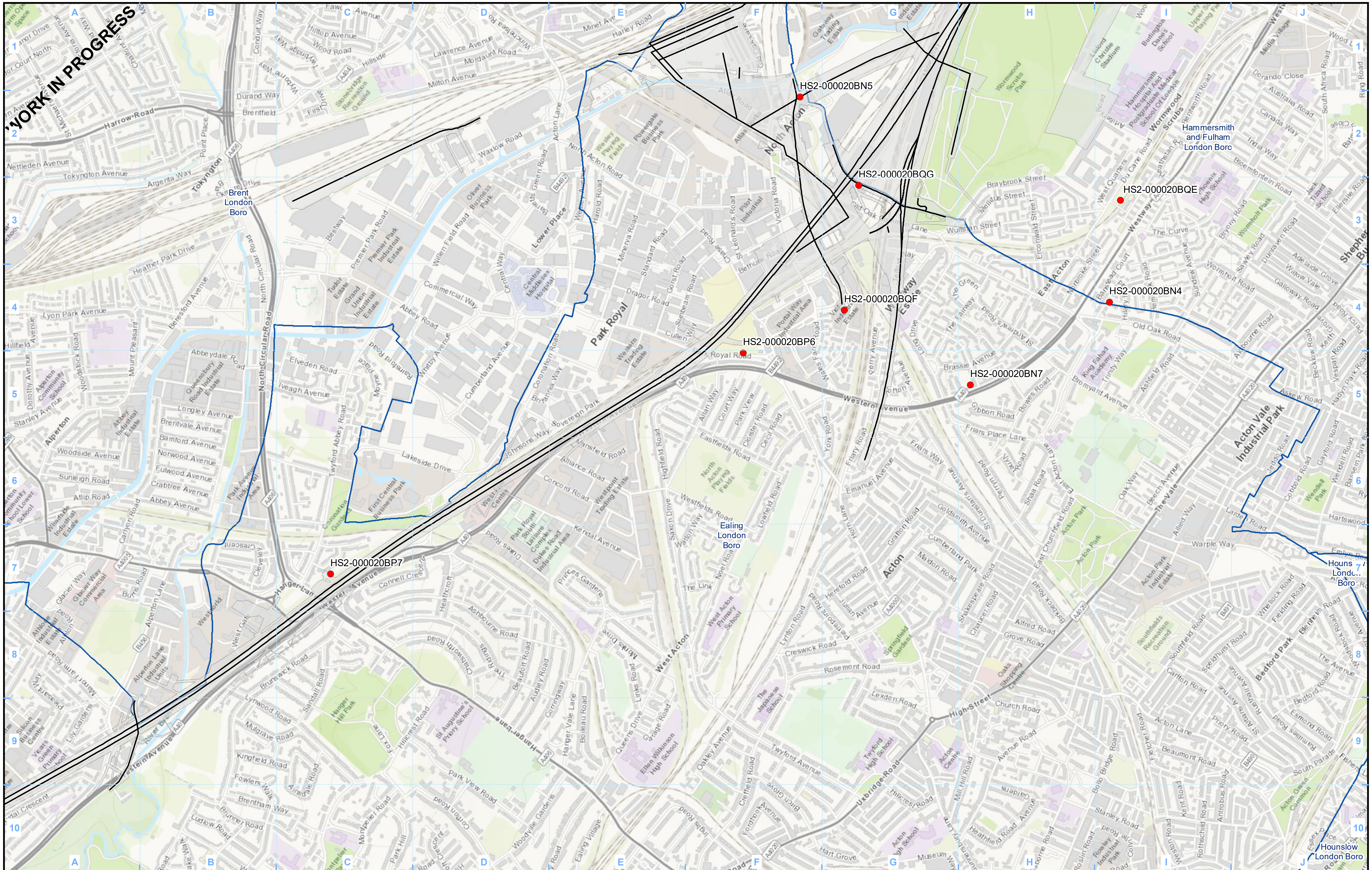
Metres

Doc Number:

Date: 29/04/19



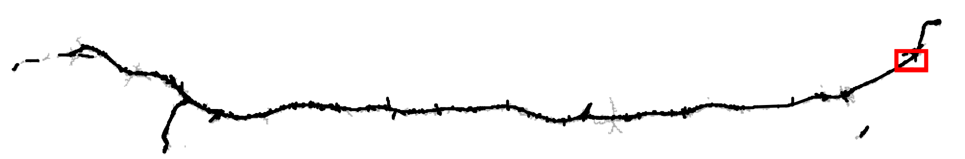
Legend

NO$_2$ Monitoring Positions 2016 Results

- < 40 µg/m³ (below AQS)
- >= 40 µg/m³ (above AQS)
- Work Sections Centreline
- Consolidated Land Boundary
- 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 Extent of route



Map Number: HS2-EV-REP-000-000030

Map Name: NO$_2$ Monitoring Positions London Borough of Ealing

(3 of 6)

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Scale at A3: 1:15,000

0 150 300 450 600 Metres

Doc Number:

Date: 29/04/19

WORK IN PROGRESS

HS2-000020BPS
HS2-000020BPQ
HS2-000020BPA
HS2-000020BN3
HS2-000020BPP
HS2-000020BPT
HS2-000020BPR
HS2-000020BPO
HS2-000020BNF
HS2-000020BN2
HS2-000020BN1
HS2-000020BNR
HS2-000020BN5
HS2-000020BQG
HS2-000020BQE
HS2-000020BQF
HS2-000020BN4
HS2-000020BP6
HS2-000020BN7
HS2-000020BNX

Brent London Boro
Kensington and Chelsea London Boro
Hammersmith and Fulham London Boro
Ealing London Boro
Hounslow London Boro
Richmond upon Thames London Boro

Legend

NO_2 Monitoring Positions
2016 Results
- < 40 µg/m³ (below AQS)
- >= 40 µg/m³ (above AQS)

Work Sections Centreline
Consolidated Land Boundary
District Borough Unitary Boundaries

Map Extent of route

Map Number
HS2-EV-REP-000-000030

Map Name
NO_2 Monitoring Positions
London Borough of Hammersmith and Fulham

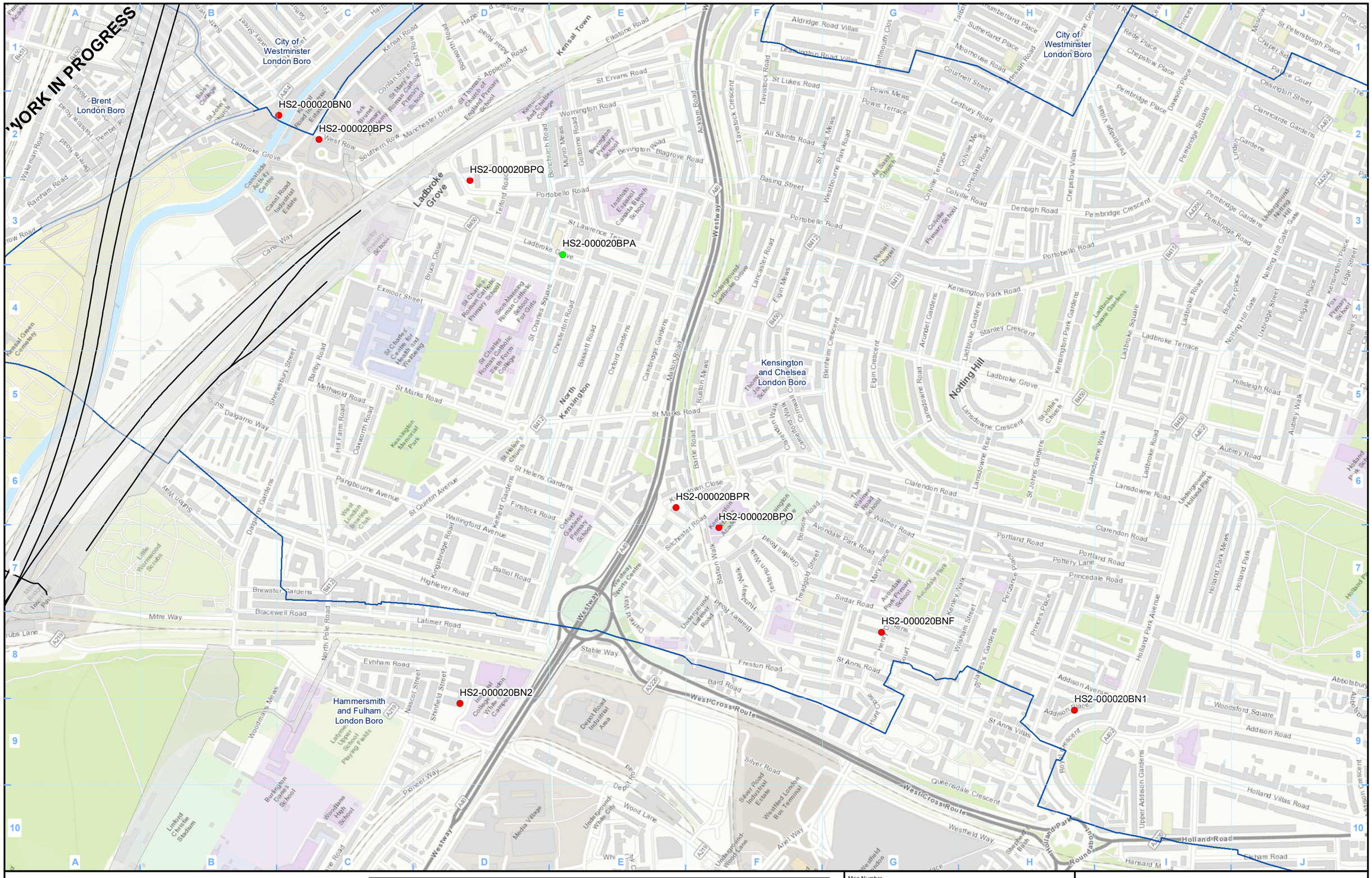
(4 of 6)

Scale at A3: 1:15,000

0 150 300 450 600
Metres

Doc Number:

Date: 29/04/19



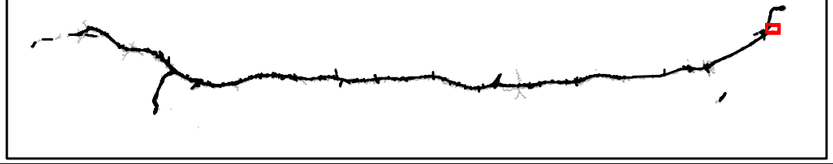
Legend

NO_2 Monitoring Positions
2016 Results
- < 40 µg/m³ (below AQS)
- >= 40 µg/m³ (above AQS)

Work Sections Centreline
Consolidated Land Boundary
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 Extent of route



Map Number
HS2-EV-REP-000-000030

Map Name
NO_2 Monitoring Positions
Royal Borough of Kensington and Chelsea

(5 of 6)

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

Scale at A3: 1:8,000

0 80 160 240 320
Metres

Doc Number:

Date: 29/04/19

WORK IN PROGRESS

HS2-000020BMV
HS2-000020BN
HS2-000020B
HS2-000020BME
HS2-000020BMD
HS2-000020BP4
HS2-000020BMW
HS2-000020BND
HS2-000020BP3
HS2-000020BQ2
HS2-000020BMX
HS2-000020BNJ
HS2-000020BPH
HS2-000020BPG
HS2-000020BP1
HS2-000020BNL
HS2-000020BNK
HS2-000020BMY
HS2-000020BPM
HS2-000020BN0
HS2-000020BPS

Camden London Boro
City of Westminster London Boro
Brent London Boro
Kensington and Chelsea London Boro

Finchley Road
Kilburn High Road
Maida Vale
Marylebone Road
Park Road
Wellington Road
Edgware Road
Park Lane
Grosvenor Place
Baker Street
Avenue Road
Abbey Road
Hamilton Terrace
Lisson Grove
Harrow Road
Great Western Road
Bayswater
Paddington
Kensington Gardens
Mayfair
Soho
Fitzrovia
Covent Garden
Leicester Square
Charing Cross
St James's
Belgravia
Chelsea
LONDON

Map Number
HS2-EV-REP-000-000030

Map Name
NO_2 Monitoring Positions
City of Westminster

(6 of 6)

Scale at A3: 1:16,500

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Metres

Doc Number:

Date: 29/04/19