HS2

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Air Quality Annual Report 2018

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Department for Transport

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Non-technical summary

This 2018 Annual Air Quality Report focusses on monitoring undertaken in the 2018 calendar year during construction works on Phase One of HS2.

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 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 results of the Environmental Impact Assessment were reported in an Environmental Statement which was submitted alongside the Bill. On 23 February 2017 Royal Assent was granted for HS2 Phase One, creating the High Speed Rail (London – West Midlands) Act 2017.

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

The first two annual reports published in 2018 (revised in 2019) focused on reporting monitoring data for air quality around highways and covered the 2016 (based on 6 months of monitoring data), and 2017 calendar years. These reports reviewed baseline conditions prior to the commencement of construction works.

This third annual report is focused on reporting monitoring data for air quality around highways, covering the 2018 calendar year during the early stages of construction activity. The report makes reference to the air pollutants and areas where significant effects were identified within the Environmental Statement, as amended. 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 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 2018 are presented in table format in Appendix D and shown on maps, with monitoring sites colour coded based on the measured concentration, in Appendix G. Particulate matter monitoring around highways is available from sites operated by Defra or local authorities and a reference to the relevant reports, where this data is available, is provided. HS2 is undertaking monitoring of indicative particulate matter for the purposes of the management of dust emissions at high and medium dust risk construction sites.

The HS2 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 2018 monitoring data with the predictions from the air quality modelling undertaken for the Environmental Statement.

During 2018 the Proposed Scheme was in in the early stages of construction. HS2 have already made commitments for measures to reduce emissions generated by construction activities. The measures include:

- Construction vehicle emission standard requirements and methods to manage their use via traffic management plans;
- Non-Road Mobile Machinery emission standard requirements; and
- Dust mitigation measures.

The Phase One Information Paper E31: Air Quality sets out the HS2 emission standards for construction vehicles and Non-Road Mobile Machinery. The construction vehicle standards came into effect on 14 September 2017 with the commencement of early works, including ground investigation surveys, land preparation works, ecological surveys, etc.

Progress and impact of measures to improve air quality during 2018 are set out in Section 4.2 and will be reported in future annual reports. HS2 continues to monitor air quality in line with the Local Air Quality Management requirements as set out in the HS2 Phase One Code of Construction Practice. HS2 has also been liaising with relevant local authorities that are introducing Clean Air Zones. Furthermore, HS2 has published an Air Quality Action Plan outlining the commitments made, and progress thereof in the management of the significant effects identified in the Environmental Statement, as amended.

1 Introduction

1.1.1 High Speed Two (HS2) is the Government's proposal for a new, high speed national railway. HS2 Phase One will connect London with Birmingham and the West Midlands; with Phase 2 planned to extend the route to Manchester, Leeds and beyond.

1.1.2 The high speed railway project is in 3 phases:

- Phase One: 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 deposited a Hybrid Bill[1] with Parliament to seek powers for the construction and operation of Phase One of HS2. Royal Assent was granted for Phase One in February 2017. The results of the Environmental Impact Assessment (EIA) were reported in an Environmental Statement (ES), as amended, which was submitted alongside the Bill, which resulted in the Secretary of State publishing the Environmental Minimum Requirements (EMRs) including the Code of Construction Practise (CoCP), which sets out the environmental and sustainability commitments that will be observed during the construction of the Proposed Scheme.

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

1.1.5 The High Speed Rail (West Midlands - Crewe) Bill ('the Bill') was submitted to Parliament together with an ES ('the main ES') in July 2017. If enacted by Parliament, the Bill will provide the powers to construct, operate and maintain Phase 2a of HS2. Following the deposit of the Bill, the need for a number of amendments to the scheme (i.e. changes that require amendments to the Bill) was identified. These amendments were promoted in Parliament in March 2018 through an Additional Provision (referred to hereafter as 'AP1'), together with an ES ('the AP1 ES'). The AP1 ES was accompanied by a Supplementary ES ('the SES1'), which reported changes to the design which do not require amendments to the Bill, changes to construction assumptions, new environmental baseline information and corrections to the main ES. AP2 was submitted Feb 2019 and at the time of drafting this action plan was currently ongoing parliamentary process with view of gaining royal assent by end 2019.

Phase 2b Hybrid Bill and associated ES are due to be submitted to parliament in mid-2020.

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

1.1.6 This 2018 Annual Air Quality Report focusses on monitoring undertaken in the 2018 calendar year during construction works on Phase One of HS2.

1.1.7 One of the key impacts, identified in the ES, as amended, were the impacts from construction traffic and highway interventions. These impacts were predicted to result in temporary significant effects, along a limited number of roads within the Greater London Area, on local air quality. These effects are mostly from changes in nitrogen dioxide (NO_2) concentrations, and to a much less extent from variations in particulate matter (PM_{10}).

1.1.8 The identified significant effects are largely as a result of the existing concentrations of air pollutants within the Greater London area 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's approach for managing air quality.

1.2.2 In order to manage significant impacts related to highway traffic changes and interventions, HS2 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 This Air Quality Action plan (published in June 2019), is the first report that presents all the measures HS2 has committed to provide in relation to air quality, forming the baseline against which performance is compared in future years of construction and operation.

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

1.2.5 The management process comprises of: 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.

1.2.6 The baseline measurements will be reviewed and an air quality assessment produced at appropriate stages of construction 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 The first two HS2 reviews of air quality were published in 2018 and focused on reporting monitoring data for air quality around highways for the 2016 (based on 6 months of monitoring data) and 2017 calendar years. These reports reviewed baseline conditions prior to the commencement of construction works[2].

1.3.2 This third air quality review is focused on reporting monitoring data for air quality around highways, covering the 2018 calendar year during the early stages of construction activity. The report provides a comparison with the information previously presented in the main ES air quality chapter.

1.3.3 This annual report is focused on reporting monitoring data for air quality around highways. The air pollutants considered in this report are 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 NO_2 and PM_{10} were 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 the Greater London area. 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 Management (IAQM) was used to determine if there were significant impacts anticipated 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 (baseline) situation. Where the existing air quality is already above government air quality standards, a relatively smaller change in pollution concentration 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, with respect to the air quality legislation, this does not denote a significant effect on human

[2] In some areas, survey work and ground investigation works were undertaken during 2016/2017. 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 2016/2017.

health. Much larger changes in air quality than what is 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 NO_2 and particulate matter are considered in this annual report. Further details of each of these pollutants is given below.

Nitrogen dioxide (NO_2)

2.1.2 Nitrogen dioxide (NO_2) is a secondary pollutant produced by the oxidation of nitric oxide (NO). NO and NO_2 are collectively termed nitrogen oxides (NO_x). Almost a third of the UK NO_x emissions are from road transport. The majority of NO_x emitted from vehicles is in the form of NO, which oxidises rapidly in the presence of ozone (O_3) to form NO_2. In high concentrations, NO_2 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 in the UK 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 PM_{10}. Finer size fractions are referred to as $PM_{2.5}$. 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 PM_{10} emissions in the UK are derived from road transport. Particulate matter are 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
- 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 NO_2 and PM_{10} for which significant effects were identified. $PM_{2.5}$ 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 Standards
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
PM_{10}	24-hour mean	50 µg/m^3 not to be exceeded more than 35 times a year
	Annual mean	40 µg/m^3
$PM_{2.5}$	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.

[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
[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

2.3 Summary of monitoring undertaken by HS2

2.3.1 All HS2 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 commenced a baseline air quality survey at the end of June 2016 in locations where there were predicted to be significant effects on air quality around highways. This baseline air quality survey measured annual mean NO_2, for which potential significant effects were predicted around certain construction traffic routes in the Greater London area. This survey has continued throughout the initial enabling works phase and will be continued into the main works construction phase.

2.3.3 In relation to where significant effects were identified for PM_{10} 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 NO_2 monitoring methodology

2.4.1 A survey of NO_2 concentrations using diffusion tubes commenced at the end of June 2016 for locations within Greater London. The survey was planned, installed and is 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 comprise of:

- 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, NO_2 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

[8] HS2 are undertaking surveys of indicative PM_{10} for the purposes of management of construction dust.
[9] Department for Environment, Food and Rural Affairs, 2018, Local Air Quality Management Technical guidance. Available at: https://laqm.defra.gov.uk/technical-guidance/

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 a site. This process is 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. Triplicate sets 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 is applied to all sites in the survey to bring these into line with the long term fixed continuous monitoring site.

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

2.4.8 The diffusion tubes used for the survey period between January and December 2018 were supplied by Gradko Environmental. The diffusion tube preparation used was 20% triethanolamine (TEA) in de-ionised water[10].

Calculation of the annual mean NO_2 Concentrations

2.4.9 Data collected with the diffusion tubes for the January to December 2018 period were annualised and bias adjusted in accordance with Defra LAQM.TG(16) guidance.

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

2.4.11 Diffusion tube data for January to December 2018 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.

2.4.12 Bias adjustment factors for background, roadside and kerbside[11] locations 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.

[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

The background sites used were Camden – Bloomsbury and Kensington and Chelsea – North Kensington. The roadside sites used were, Camden – Euston Road, Ealing – Hanger Lane, Ealing – Western Avenue, and Hillingdon – South Ruislip. The kerbside sites used were Camden – Swiss Cottage and Westminster – Marylebone Road. Further details on the continuous monitoring sites are available at www.londonair.org.uk and at www.airqualityengland.co.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%, the survey is of good precision. All sites were found to have good precision and therefore all sites were used for bias adjustment.

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

2.5 HS2 NO_2 survey monitoring results

2.5.1 Full monitoring results for the air quality NO_2 diffusion tube survey are presented in the tables in Appendix D and maps in Appendix G.

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 are presented in the London Air Quality Network Summary Report 2017 [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, Westminster – Marylebone Road and Hillingdon – South Ruislip (data for this site can be viewed and downloaded from www.airqualityengland.co.uk).

2.6.2 Dust is measured at appropriate locations at the construction site boundary and/or at sensitive receptors using instruments that provide continuous measurement of particulate matter as PM_{10}. As a minimum standard of measurement uncertainty, these instruments are certified through MCERTS as being indicative ambient particulate monitors. Monitoring is only undertaken at High or Medium dust risk sites, as determined through the Institute of Air Quality Monitoring (IAQM) Guidance on the assessment of dust from demolition and construction.

2.6.3 Where monitoring is undertaken, monthly summary reports are produced and published at https://www.gov.uk/government/collections/monitoring-the-environmental-effects-of-hs2 providing commentary on visual inspections and relevant trigger levels, and summary statistics for each monitoring site including max, min, mean, number of

[13] Kings College London, 2018, London Air Quality Network Summary Report 2017, November 2018.

exceedances of the trigger level and line charts of monthly data relevant to the trigger level. The trigger level is set in accordance with the IAQM Guidance on monitoring in the vicinity of demolition and construction sites.

3 Comparison to predictions in the environmental statement

3.1.1 Appendix E presents a comparison between the calculated 2018 results, the modelled prediction for peak NO_2 annual mean concentrations from the ES for the scenario without and with the Proposed Scheme in place[14]. Appendix F presents a comparison between the 2016, 2017 and 2018 monitored results.

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, the diffusion tubes 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 2017 'without scheme' comparison indicates that:

- Of the 117 locations where monitoring was undertaken in 2018, monitored concentrations from 58 tubes were within ±25% of the modelled concentrations.
- Where the comparison has a difference of more than ±25%:
    - Monitored concentrations were higher than the modelled concentrations for 3 sites (3% of the overall sites), which occurred at locations adjacent to relatively high traffic roads for the area, specifically Hendon Way / Finchley Road, Camden High Street and Old Oak Common Lane respectively;
    - Modelled concentrations were higher than the monitored concentrations for 35 sites (30% of the overall sites), which were typically associated with locations on side streets away from major roads (however with one exception along Grays Inn Road, three along Euston Road and three along the A40); and
    - A further 21 tubes are not located in proximity to modelled receptors and thus have not undergone a comparison.

3.1.5 The 'with scheme' comparison of data from the closest representative modelled scenario from the main ES indicates that:

[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).

- Of the 117 locations where monitoring was undertaken in 2018, monitored concentrations from 60 tubes were within ±25% of the modelled concentrations.
- Where comparison has a difference of more than ±25%:
    - Monitored concentrations were higher than the modelled concentrations for 3 sites (3% of the overall sites), which occurred at locations adjacent to relatively high traffic roads for the area, specifically Hendon Way / Finchley Road, Camden High Street and Old Oak Common Lane respectively;
    - Modelled concentrations were higher than the monitored concentrations for 33 sites (28% of the overall sites), which were typically associated with locations on side streets away from major roads (however with one exception along Grays Inn Road, three along Euston Road and three along the A40); and
    - A further 21 tubes are not located in proximity to modelled receptors and thus have not undergone a comparison.

3.1.6 The key reasons for differences in 2018 monitored annual mean NO_2 concentrations and the modelled annual mean NO_2 concentrations are as follows:

- 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;
- 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]; and
- Policy changes and public awareness around Air Quality issues and concerns (i.e. in preparation for the London Low Emission Zone ahead of the implementation in April 2019).

3.1.7 The ES determined significance of the air quality impacts based on the change in concentration relative to the modelled without Proposed Scheme concentrations. This approach and the relevant parameters to apply are set out in the Institute of Air Quality Management guidance, Planning for Air Quality (2017).

3.1.8 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

[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.

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.

3.1.9 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.

3.1.10 Of the 117 diffusion tube monitoring locations in 2018, 11 locations were not monitored prior to 2018. Of the remaining 106 diffusion tubes, 69 locations indicated a reduction or no change in monitored concentrations between 2017 and 2018, with 37 indicating a slight increase in monitored concentrations. The number of locations at which the monitored concentrations exceeded the Air Quality Objective decreased between 2017 and 2018. However, an additional 6 locations are now reporting an exceedance with the Air Quality Objective. Eight (8) new locations note compliance with the Air Quality Objective when compared to the 2017 monitoring results.

4 Actions to improve air quality

4.1 Proposed actions

4.1.1 In developing an air quality action plan for the Proposed Scheme HS2 have already made commitments to measures to reduce emissions generated by construction activities. These measures are set out in the HS2 Phase 1 Code of Construction Practice (CoCP) and HS2 Phase One Information Paper E31: Air Quality.

4.1.2 The measures include:

- Construction vehicle emission standards requirements[16] and methods to manage their use via traffic management plans;
- NRMM emission standard requirements; 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 also provides further baseline data due to the limited number of construction activities occurring during the year. The year 2018 is representative of the enabling works and therefore considered as an early construction year.

4.2.2 Phase One Information Paper E31: Air Quality sets out the HS2 emission standards. For construction vehicle emissions, NRMM and dust management. The construction vehicle standards came into effect on 14 September 2017 with the commencement of early works, including ground investigation surveys, land preparation works, ecological surveys, etc.

Vehicle and NRMM Compliance

4.2.3 Areas are divided into HS2 Phase One Area North, Central and South, where:

- Area North begins south of Long Itchington Wood tunnel (south of Warwick) and proceeds to the Birmingham Interchange and Curzon Street Stations, to Handsacre where it connects with the West Coast Main Line at Lichfield.
- Area Central extends from the Colne valley viaduct and Chiltern Tunnels, through to the North Portal Chiltern tunnels to Brackley, to the Itchington Green Tunnel, south portal area.
- Area South covers the Central Activity Zone (CAZ) (including Euston) and the Greater London Area.

4.2.4 The Phase One Area targets and requirements are presented in Table 2. Opportunities for exemptions are made available to all contractors on the grounds of specialism, triviality or

[16] The HS2 emission standards are set out HS2 Phase 1 Information Paper E31: Air Quality

unforeseen circumstances. HS2 have committed to granting no more than 8% unique vehicle exemptions, across the Phase One route, on an annual basis.

Table 2 – Construction Vehicle Emission Targets

Vehicle Class & Minimum Vehicle Emission Standard	**Area South**	**Rest of Route (Area Central and Area North)**
Heavy Goods Vehicles (HGVs) - Euro VI	Target – 100% from start of works	Target – 100% from start of works
	Requirement – 100% from start of works	Requirement – as far as reasonably practicable, 100% from 2020
Light Duty Vehicles (LDVs) - Euro 6 Diesel - Euro 4 Petrol	Target – 100% from start of works	Target – 80% from start of works
	Requirement – 100% from 2020	Requirement – 100% from 2020
Exemptions	No more than 8% of unique vehicles on an annual basis	

4.2.5 Similar to HGV and LDVs, NRMM (of a net power between 37kW and 560kW) are categorised based on their emissions. HS2 committed to stricter requirements than the London Supplementary Planning Guidance (SPG) which includes requirements for NRMM used within Greater London and the Central Activity Zone to be of a certain standard, dependant on the year of use. The NRMM emission targets that HS2 has committed to are presented in Table 3.

Table 3 – NRMM Emission Targets

Area	**London SPG Stage Requirements**		**HS2 Requirements**	
	From 2015	From 2020	From 2017	From 2020
Central Activity Zone (includes Euston)	IIIB	IV	$IV_{(1,2)}$	Best practice (Stage V)
Rest of Greater London	IIIA	IIIB	$IIIB_{(2)}$	$IV_{(1,2)}$
Rest of Country	Not Applicable	Not Applicable	$IIIB_{(2)}$	$IV_{(1,2)}$

Notes:

The above emission standard requirements should be read in conjunction with High Speed Two Information Paper, E31: Air Quality

(1) IIIB for $37 \leqslant P < 56$kW, as there is no corresponding Stage (IV) at EU Level

(2) IIIA for constant speed engines of any power, as there is no corresponding Stage IIIB or IV at EU level.

4.2.6 The 2018 compliance figures for vehicle emissions and NRMM are presented in Table 4.

Table 4 – 2018 Compliance Figures (Vehicle Emissions & NRMM)

Area	Category	Target / Requirement	Compliance Achieved
Area North	LDV	80% (Target)	66%
	HGV	100% (Target)	77%
	NRMM	100% (Requirement)	99%
Area Central	LDV	80% (Target)	74%
	HGV	100% (Target)	79%
	NRMM	100% (Requirement)	98%
Area South	LDV	100% (Target)	68%
	HGV HGV Exemptions Approved	100% (Requirement) <8% (Requirement)	98% 1%
	NRMM	100% (Requirement)	Greater London – 98%
			CAZ – 99%

Innovations

4.2.7 In October 2018, Ove Arup & Partners and HS2 were recognised for the innovative contributions to Air Quality at the National Air Quality Awards, where were the winners in the "*Commercial Sector Air Quality Initiative of the Year" category. The award was given for the "Air Quality Mitigation during Construction, Setting a New Standard*".

4.2.8 HS2 and Kings College London undertook a study to evaluate construction site monitoring strategies. The findings of this innovative work led to an update of existing Institute of Air Quality Management (IAQM) guidance document "*Guidance on Monitoring in the Vicinity of Demolition and Construction Sites*". This document and others produced by the IAQM are widely recognised as best practice both nationally and internationally. The changes to the guidance resulting from the HS2 / Kings College study were that:

- The dust trigger level was updated from 250µg/m^3 per 15-minute average, to 190µg/m^3 per 1-hour average;
- Baseline dust monitoring is no longer an absolute requirement (depending on the area); and
- Additional, more robust Quality Assurance measures.

4.2.9 This example of innovation is particularly significant because it will impact the wider Air Quality construction industry, not just HS2.

4.2.10 HS2 has also demonstrated innovation through the use of construction equipment with either zero (0) or significantly lower NO_x emissions. Some aspects of construction have been undertaken using electric equipment and hybrid excavators, reducing pollutant emissions from this site.

4.2.11 HS2 will continue to monitor air quality in line with the LAQM requirements as set out in the CoCP. In consideration of potential future local authority designated Clean Air Zones, HS2 has also been liaising with relevant local authorities and will consider these in future annual air quality reports. Furthermore, HS2 has published an Air Quality Action Plan to outline all commitments made with regards to air quality, and progress thereof in the management of the significant effects identified in the ES.

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

The number of receptors with significant effects is presented in Table 3 modelled in the ES. This has been calculated from the annual mean NO_2 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 5 – 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 air quality monitoring survey locations

Table 6 gives details of the locations included in the HS2 NO_2 diffusion tube survey during 2018. Appendix G presents maps of the locations, labelled with the site ID, colour coded based on the measured concentration.

Table 6 – Details of HS2 air quality NO_2 diffusion tube monitoring survey locations

Site ID	Local authority	Site location	Site location type	X coordinate	Y coordinate	Height (metres)	Site purpose
HS2-000020BM5	Camden Council	Junction of St Chad's Street and Grays Inn Road	Roadside	530436	182929	2.3	Predicted significant effect
HS2-000020BM6	Camden Council	Brunswick Square	Roadside	530321	182268	2.5	Predicted significant effect
HS2-000020BM7	Camden Council	Chalton Street	Roadside	529894	182702	2.3	Predicted significant effect
HS2-000020BM8	Camden Council	Junction of Euston Square and Grafton Place	Roadside	529737	182641	2.3	Predicted significant effect
HS2-000020BM9	Camden Council	Junction of Endsleigh Gardens and Upper Woburn Place	Roadside	529785	182529	2.4	Predicted significant effect
HS2-000020BMA	Camden Council	Junction of Euston Road and Gower Street	Roadside	529429	182375	2.5	Predicted significant effect
HS2-000020BMB	Camden Council	Whitfield Street	Background	529273	182114	2.5	Predicted significant effect
HS2-000020BMC	Camden Council	Hampstead Road	Roadside	529232	182511	2.3	Predicted significant effect
HS2-000020BMD	Westminster City Council	Lamp post on Park Crescent Road	Roadside	528776	182170	2.3	Predicted significant effect
HS2-000020BME	Westminster City Council	Lamp post in between A501 and A4201	Roadside	528901	182180	2.3	Predicted significant effect
HS2-000020BMF	Camden Council	Junction of Polygon Road and Ossulston Street	Background	529715	183123	2.5	Predicted significant effect
HS2-000020BMH	Camden Council	Nash Street	Background	528861	182717	2.5	Predicted significant effect
HS2-000020BMJ	Camden Council	Junction on Robert Street and Stanhope Street	Background	529080	182698	2.5	Predicted significant effect

Site ID	Local authority	Site location	Site location type	X coordinate	Y coordinate	Height (metres)	Site purpose
HS2-000020BMK	Camden Council	Junction of Plender Street and Bayham Street	Roadside	529196	183546	2.5	Predicted significant effect
HS2-000020BML	Camden Council	Junction of Arlington Road and Mornington Crescent	Background	529093	183356	2.5	Predicted significant effect
HS2-000020BMM	Camden Council	Junction of Bayham Street and Pratt Street	Roadside	529084	183722	2.5	Predicted significant effect
HS2-000020BMN	Camden Council	Junction of Delancey Street and Albert Street	Roadside	528850	183573	2.5	Predicted significant effect
HS2-000020BMQ	Camden Council	Junction of Parkway and Delancey Street	Roadside	528662	183604	2.5	Predicted significant effect
HS2-000020BMR	Camden Council	Junction of Oval Road and Jamestown Road	Background	528548	183967	2.5	Predicted significant effect
HS2-000020BMS	Camden Council	Junction of Chalk Farm Road and Castlehaven Road	Roadside	528685	184188	2.5	Predicted significant effect
HS2-000020BMT	Camden Council	Junction of Camden Road and Camden Street	Kerbside	529079	184043	2.3	Predicted significant effect
HS2-000020BMU	Camden Council	Junction of Southampton Road and Fleet Road	Roadside	527783	185407	2.5	Predicted significant effect
HS2-000020BMV	Camden Council	Primrose Hill Road	Roadside	527538	184250	2.5	Predicted significant effect
HS2-000020BMW	Camden Council	Junction of Finchley Road and Hilgrove Road	Roadside	526619	184081	2.3	Predicted significant effect
HS2-000020BMX	Westminster City Council	Sign post by roundabout on A5205	Roadside	527206	182887	2.3	Predicted significant effect
HS2-000020BMY	Westminster City Council	Lamp post between Blomfield Road and Edgware Road	Roadside	526549	182226	2.3	Predicted significant effect
HS2-000020BMZ	Camden Council	Junction of Finchley Road and Hendon Way	Roadside	525102	186042	2.3	Predicted significant effect
HS2-000020BN0	Westminster City Council	Lamp post on Ladbroke Grove	Roadside	523869	182465	2.3	Predicted significant effect
HS2-000020BN1	Kensington and Chelsea Council	Sign post on St Ann's Villas	Roadside	523998	180160	2.5	Predicted significant effect

Site ID	Local authority	Site location	Site location type	X coordinate	Y coordinate	Height (metres)	Site purpose
HS2-000020BN2	Hammersmith and Fulham Council	Lamp post on Du Cane Road	Roadside	523092	181264	2.5	Predicted significant effect
HS2-000020BN3	Brent Council	Sign post on High Street Harlesden	Roadside	522335	182955	2.5	Predicted significant effect
HS2-000020BN4	Hammersmith and Fulham Council	End of cycle lane sign on Old Oak Road	Roadside	521625	180871	2.3	Predicted significant effect
HS2-000020BN5	Ealing Council	Sign post on Victoria Road	Roadside	521443	182477	2.3	Predicted significant effect
HS2-000020BN7	Ealing Council	The Approach street sign	Roadside	520959	181102	2.3	Predicted significant effect
HS2-000020BNA	Camden Council	Junction of Regent's Park Road and Rothwell Street	Roadside	527884	183980	2.5	Predicted significant effect
HS2-000020BNB	Camden Council	Junction of Gloucester Gate Bridge and Park Village East	Roadside	528639	183518	2.5	Predicted significant effect
HS2-000020BNC	Camden Council	Junction of Outer Circle and Gloucester Gate	Background	528528	183443	2.5	Predicted significant effect
HS2-000020BND	Westminster City Council	Outer Circle Regent's Park	Kerbside	528276	182185	2.5	Predicted significant effect
HS2-000020BNF	Kensington and Chelsea Council	Unsuitable for long vehicles sign on St Ann's Villas	Roadside	523849	180620	2.5	Predicted significant effect
HS2-000020BNG	Brent Council	Lamp post on Donnington Road	Roadside	523110	184055	2.5	Predicted significant effect
HS2-000020BNH	Camden Council	Junction of Parkway and Albert Street	Kerbside	528763	183720	2.5	Predicted significant effect
HS2-000020BNJ	Westminster City Council	Light post on Park Road	Roadside	527359	182633	2.3	Predicted significant effect
HS2-000020BNK	Westminster City Council	London Underground sign outside Edgware Rd Station	Roadside	527048	181731	2.3	Predicted significant effect
HS2-000020BNL	Westminster City Council	Lamp post on Penfold Street	Background	526914	182077	2.3	Background not affected by scheme
HS2-000020BNN	Camden Council	Lincoln's Inn Fields	Background	530744	181308	2.5	Background not affected by scheme

Site ID	Local authority	Site location	Site location type	X coordinate	Y coordinate	Height (metres)	Site purpose
HS2-000020BNQ	Camden Council	Camley Street	Background	529735	183737	2.3	Background not affected by scheme
HS2-000020BNR	Hammersmith and Fulham Council	Lamp posts in Shepherd's Bush Common	Background	523481	179871	2.5	Background not affected by scheme
HS2-000020BNS	Brent Council	Lamp post on Tower Road by Willesden Jewish Cemetery	Background	522196	184448	2.5	Background not affected by scheme
HS2-000020BNT	Hillingdon Council	Lamp post on Pembroke Road	Background	509678	187214	2.5	Background not affected by scheme
HS2-000020BNU	Hillingdon Council	Cowley Road sign post at junction with Hillingdon Road	Roadside	505492	183926	2.5	Roadside not affected by scheme
HS2-000020BNV	Hillingdon Council	High Street sign post at junction with Pembroke Road	Roadside	509439	187117	2.3	Roadside not affected by scheme
HS2-000020BNW	Hillingdon Council	Signpost on A4020 Uxbridge Road at junction with Long Lane	Roadside	507365	182687	2.5	Roadside not affected by scheme
HS2-000020BNX	Hammersmith and Fulham Council	Signpost on A402 Goldhawk Road	Roadside	522035	179199	2.5	Roadside not affected by scheme
HS2-000020BNY	Camden Council	Junction of Mill Lane and Hillfield Road	Roadside	524839	185136	2.5	Roadside not affected by scheme
HS2-000020BNZ	Camden Council	Mansfield Road	Roadside	528050	185508	2.5	Roadside not affected by scheme
HS2-000020BP0	Camden Council	Junction of Camden Road and Torriano Avenue	Roadside	529708	184871	2.3	Roadside not affected by scheme
HS2-000020BP1	Westminster City Council	Lamp post on Brook Street	Roadside	528597	180942	2.3	Roadside not affected by scheme
HS2-000020BP2	Camden Council	Junction of Grays Inn Road and Holborn	Roadside	531149	181616	2.5	Roadside not affected by scheme
HS2-000020BP3	Westminster City Council	Triplicate site next to the Marylebone Road kerbside automatic monitoring stations	Kerbside	528125	182016	2.5	Co-location kerbside
HS2-000020BP4	Camden Council	Triplicate site on Finchley Road next to Swiss Cottage kerbside automatic monitoring station	Kerbside	526633	184392	3.0	Co-location kerbside

Site ID	Local authority	Site location	Site location type	X coordinate	Y coordinate	Height (metres)	Site purpose
HS2-000020BP5	Camden Council	Triplicate site next to the Euston Road roadside automatic monitoring stations	Roadside	529895	182657	2.5	Co-location roadside
HS2-000020BP6	Ealing Council	Triplicate site next to the Ealing, Western Avenue Acton roadside automatic monitoring station	Roadside	520430	181950	2.0	Co-location roadside
HS2-000020BP7	Ealing Council	Triplicate site next to the Ealing, Hangar Lane Gyratory roadside automatic monitoring station	Roadside	518537	182708	2.0	Co-location roadside
HS2-000020BP8	Hillingdon Council	Triplicate site at South Ruislip roadside automatic monitoring station	Roadside	510858	184916	2.5	Co-location roadside
HS2-000020BP9	Camden Council	Triplicate site in Russell Square next to Bloomsbury urban background automatic monitoring station	Background	530120	182034	2.5	Co-location background
HS2-000020BPA	Kensington and Chelsea Council	Triplicate site at Sion Manning School, St. Charles' square, next to the North Kensington urban background automatic monitoring stations	Background	524045	181752	2.5	Co-location background
HS2-000020BPB	Camden Council	Camden High Street	Roadside	528966	183735	2.3	Predicted significant effect
HS2-000020BPC	Camden Council	Castlehaven Road	Background	528788	184591	2.5	Predicted significant effect
HS2-000020BPD	Camden Council	Prince of Wales Road	Roadside	528571	184683	2.5	Predicted significant effect
HS2-000020BPE	Camden Council	Haverstock Hill	Roadside	527710	184749	2.5	Predicted significant effect
HS2-000020BPF	Camden Council	Junction of Primrose Gardens and England's Lane	Background	527549	184640	2.5	Predicted significant effect
HS2-000020BPG	Westminster City Council	Lamp post on St John's Wood Street	Roadside	527019	182748	2.3	Predicted significant effect
HS2-000020BPH	Westminster City Council	Lamp post St John's Wood Terrace	Roadside	526818	183164	2.3	Predicted significant effect

Site ID	Local authority	Site location	Site location type	X coordinate	Y coordinate	Height (metres)	Site purpose
HS2-000020BPK	Hillingdon Council	Lamp post in crescent off Swakeleys Road	Roadside	506542	186037	2.2	Predicted significant effect
HS2-000020BPL	Hillingdon Council	Warren Road sign post on corner of Swakeleys Road and Warren Road	Roadside	506240	185660	2.3	Predicted significant effect
HS2-000020BPM	Brent Council	Lamp post along Gorefield Place near block of flats	Background	525222	183309	2.5	Background not affected by scheme
HS2-000020BPN	Hillingdon Council	Lamp post on B467	Roadside	506767	186224	2.3	Predicted significant effect
HS2-000020BPO	Kensington and Chelsea Council	Lamp post off Silchester Road	Roadside	523792	181066	2.5	Predicted significant effect
HS2-000020BPP	Hammersmith and Fulham Council	Sign post on A219 Scrubs Lane, South of Harrow Road	Roadside	522378	182877	2.5	Predicted significant effect
HS2-000020BPQ	Kensington and Chelsea Council	Lamp post along Ladbroke Grove, near shops and bus stop at Trevorton Road junction	Roadside	524038	182028	2.5	Predicted significant effect
HS2-000020BPR	Kensington and Chelsea Council	Lamp post at junction of Crowthorne Road and Bramley Road	Roadside	523763	181172	2.5	Predicted significant effect
HS2-000020BPS	Kensington and Chelsea Council	Lamp post by fence on B450 Ladbroke Grove, south of A404 Harrow Road	Roadside	523886	182358	2.5	Predicted significant effect
HS2-000020BPT	Hammersmith and Fulham Council	Controlled Zone/Zone Ends road sign on A219 Scrubs Lane, north of Hythe Road	Roadside	522478	182517	2.5	Predicted significant effect
HS2-000020BPU	Camden Council	Junction of Gower Street and Grafton Way	Roadside	529476	182267	2.5	Predicted significant effect
HS2-000020BPV	Camden Council	Phoenix Road	Background	529653	182958	2.5	Predicted significant effect
HS2-000020BPW	Camden Council	Junction of Delancey Street and Arlington Road	Roadside	528939	183637	2.5	Predicted significant effect
HS2-000020BPX	Camden Council	Netley Street	Background	529177	182625	2.5	Predicted significant effect
HS2-000020BPY	Camden Council	Stanhope Street	Background	529060	182947	2.5	Predicted significant effect

Site ID	Local authority	Site location	Site location type	X coordinate	Y coordinate	Height (metres)	Site purpose
HS2-000020BPZ	Camden Council	Albany Street	Roadside	528790	182923	2.5	Predicted significant effect
HS2-000020BQ0	Camden Council	Werrington Street	Background	529493	183113	2.3	Predicted significant effect
HS2-000020BQ1	Camden Council	Polygon Road	Background	529574	183045	2.5	Predicted significant effect
HS2-000020BQ2	Camden Council	Alexandra Place	Background	526320	183980	2.5	Predicted significant effect
HS2-000020BQ3	Camden Council	Harrington Square	Kerbside	529228	183172	2.5	Predicted significant effect
HS2-000020BQ4	Camden Council	Junction of North Gower Street and Starcross Street	Background	529290	182572	2.5	Predicted significant effect
HS2-000020BQ5	Camden Council	Adelaide Road	Roadside	527713	184392	2.7	Predicted significant effect
HS2-000020BQ6	Camden Council	Mornington Terrace	Background	528836	183474	2.5	Predicted significant effect
HS2-000020BQ7	Camden Council	Arlington Road	Background	529009	183479	2.5	Predicted significant effect
HS2-000020BQ8	Camden Council	Clarkson Row	Background	529024	183213	2.5	Predicted significant effect
HS2-000020BQ9	Camden Council	Park Village East	Background	528923	183121	2.5	Predicted significant effect
HS2-000020BQA	Camden Council	Eversholt Street	Kerbside	529386	183132	2.5	Predicted significant effect
HS2-000020BQB	Camden Council	Junction of Harrington Street and Varndell Street	Background	529147	182816	2.5	Predicted significant effect
HS2-000020BQC	Camden Council	Junction of Robert Street and Hampstead Road	Kerbside	529199	182704	2.5	Predicted significant effect
HS2-000020BQD	Camden Council	Drummond Crescent	Background	529648	182856	2.5	Predicted significant effect
HS2-000020BQE	Hammersmith and Fulham Council	Lamp post next to No 11 Wulfstan Street	Background	521996	181118	2.5	Predicted significant effect

Site ID	Local authority	Site location	Site location type	X coordinate	Y coordinate	Height (metres)	Site purpose
HS2-000020BQF	Ealing Council	Conway Drive sign post	Roadside	520856	181733	2.5	Predicted significant effect
HS2-000020BQG	Ealing Council	Lamp post outside No 1. Wells House Road on Old Oak Common Lane	Roadside	521312	182033	2.5	Predicted significant effect
HS2-000020BQH	Hillingdon Council	Lamp post on High Road Ickenham	Roadside	508451	186879	2.4	Predicted significant effect
HS2-000020BQJ	Camden Council	Grafton Way	Background	529380	182225	2.5	Predicted significant effect
HS2-000020BQK	Camden Council	Junction of Drummond Street and Cobourg Street	Background	529398	182593	2.4	Predicted significant effect
HS2-000020BQL	Camden Council	Delancey Street	Roadside	528768	183581	2.4	Predicted significant effect
HS2-000020BQN	Hillingdon Council	Lamp post on Park Road	Roadside	506176	185444	2.4	Predicted significant effect
HS2-000020BQP	Hillingdon Council	Sign post on Long Lane	Roadside	507614	184663	2.1	Predicted significant effect
HS2-000020BQQ	Kensington and Chelsea Council	Lamp post along Ladbroke Grove, near shops and bus stop at Trevorton Road junction	Kerbside	524036	182034	2.1	Predicted significant effect
HS2-000020BQR	Camden Council	Co-located with Noise install on park road village	Background	528682	183505	2.4	Predicted significant effect
HS2-000020BQS	Camden Council	Opposite Maria fidelis school on Pheonix Road	Background	529670	182982	2.3	Predicted significant effect
HS2-000020BQT	Camden Council	Drummond Street	Background	529385	182581	2.2	Predicted significant effect
HS2-000020BQU	Westminster City Council	Lamppost outside Edgware Road Station	Kerbside	527048	181731	2.2	Predicted significant effect

Appendix C – Annualisation and bias adjustment of NO_2 diffusion tubes

Table 7 – Annualisation and bias adjustment factors applied to each monitoring site

Site ID	Local authority	Site location	Site location type	2018 annualisation factor[17]	2018 bias adjustment factor
HS2-000020BM5	Camden Council	Junction of St Chad's Street and Grays Inn Road	Roadside	Not annualised	0.952
HS2-000020BM6	Camden Council	Brunswick Square	Roadside	Not annualised	0.952
HS2-000020BM7	Camden Council	Chalton Street	Roadside	Not annualised	0.952
HS2-000020BM8	Camden Council	Junction of Euston Square and Grafton Place	Roadside	Not annualised	0.952
HS2-000020BM9	Camden Council	Junction of Endsleigh Gardens and Upper Woburn Place	Roadside	Not annualised	0.952
HS2-000020BMA	Camden Council	Junction of Euston Road and Gower Street	Roadside	Not annualised	0.952
HS2-000020BMB	Camden Council	Whitfield Street	Background	Not annualised	0.881
HS2-000020BMC	Camden Council	Hampstead Road	Roadside	Not annualised	0.952
HS2-000020BMD	Westminster City Council	Lamp post on Park Crescent Road	Roadside	Not annualised	0.952
HS2-000020BME	Westminster City Council	Lamp post in between A501 and A4201	Roadside	Not annualised	0.952
HS2-000020BMF	Camden Council	Junction of Polygon Road and Ossulston Street	Background	Not annualised	0.881
HS2-000020BMH	Camden Council	Nash Street	Background	Not annualised	0.881
HS2-000020BMJ	Camden Council	Junction on Robert Street and Stanhope Street	Background	Not annualised	0.881
HS2-000020BMK	Camden Council	Junction of Plender Street and Bayham Street	Roadside	Not annualised	0.952
HS2-000020BML	Camden Council	Junction of Arlington Road and Mornington Crescent	Background	Not annualised	0.881
HS2-000020BMM	Camden Council	Junction of Bayham Street and Pratt Street	Roadside	Not annualised	0.952
HS2-000020BMN	Camden Council	Junction of Delancey Street and Albert Street	Roadside	Not annualised	0.952
HS2-000020BMQ	Camden Council	Junction of Parkway and Delancey Street	Roadside	Not annualised	0.952
HS2-000020BMR	Camden Council	Junction of Oval Road and Jamestown Road	Background	Not annualised	0.881
HS2-000020BMS	Camden Council	Junction of Chalk Farm Road and Castlehaven Road	Roadside	Not annualised	0.952
HS2-000020BMT	Camden Council	Junction of Camden Road and Camden Street	Kerbside	Not annualised	0.851
HS2-000020BMU	Camden Council	Junction of Southampton Road and Fleet Road	Roadside	Not annualised	0.952
HS2-000020BMV	Camden Council	Primrose Hill Road	Roadside	Not annualised	0.952
HS2-000020BMW	Camden Council	Junction of Finchley Road and Hilgrove Road	Roadside	Not annualised	0.952

[17] Sites have not been annualised where there is greater than 75% or less than 25% data capture

Site ID	Local authority	Site location	Site location type	2018 annualisation factor[17]	2018 bias adjustment factor
HS2-000020BMX	Westminster City Council	Sign post by roundabout on A5205	Roadside	Not annualised	0.952
HS2-000020BMY	Westminster City Council	Lamp post between Blomfield Road and Edgware Road	Roadside	Not annualised	0.952
HS2-000020BMZ	Camden Council	Junction of Finchley Road and Hendon Way	Roadside	Not annualised	0.952
HS2-000020BN0	Westminster City Council	Lamp post on Ladbroke Grove	Roadside	Not annualised	0.952
HS2-000020BN1	Kensington and Chelsea Council	Sign post on St Ann's Villas	Roadside	Not annualised	0.952
HS2-000020BN2	Hammersmith and Fulham Council	Lamp post on Du Cane Road	Roadside	Not annualised	0.952
HS2-000020BN3	Brent Council	Sign post on High Street Harlesden	Roadside	Not annualised	0.952
HS2-000020BN4	Hammersmith and Fulham Council	End of cycle lane sign on Old Oak Road	Roadside	Not annualised	0.952
HS2-000020BN5	Ealing Council	Sign post on Victoria Road	Roadside	Not annualised	0.952
HS2-000020BN7	Ealing Council	The Approach street sign	Roadside	Not annualised	0.952
HS2-000020BNA	Camden Council	Junction of Regent's Park Road and Rothwell Street	Roadside	Not annualised	0.952
HS2-000020BNB	Camden Council	Junction of Gloucester Gate Bridge and Park Village East	Roadside	Not annualised	0.952
HS2-000020BNC	Camden Council	Junction of Outer Circle and Gloucester Gate	Background	Not annualised	0.881
HS2-000020BND	Westminster City Council	Outer Circle Regent's Park	Kerbside	Not annualised	0.851
HS2-000020BNF	Kensington and Chelsea Council	Unsuitable for long vehicles sign on St Ann's Villas	Roadside	1.121	0.952
HS2-000020BNG	Brent Council	Lamp post on Donnington Road	Roadside	Not annualised	0.952
HS2-000020BNH	Camden Council	Junction of Parkway and Albert Street	Kerbside	Not annualised	0.851
HS2-000020BNJ	Westminster City Council	Light post on Park Road	Roadside	Not annualised	0.952
HS2-000020BNK	Westminster City Council	London Underground sign outside Edgware Rd Station	Roadside	Not annualised	0.952
HS2-000020BNL	Westminster City Council	Lamp post on Penfold Street	Background	Not annualised	0.881
HS2-000020BNN	Camden Council	Lincoln's Inn Fields	Background	Not annualised	0.881
HS2-000020BNQ	Camden Council	Camley Street	Background	Not annualised	0.881
HS2-000020BNR	Hammersmith and Fulham Council	Lamp posts in Shepherd's Bush Common	Background	Not annualised	0.881
HS2-000020BNS	Brent Council	Lamp post on Tower Road by Willesden Jewish Cemetery	Background	Not annualised	0.881
HS2-000020BNT	Hillingdon Council	Lamp post on Pembroke Road	Background	Not annualised	0.881
HS2-000020BNU	Hillingdon Council	Cowley Road sign post at junction with Hillingdon Road	Roadside	Not annualised	0.952
HS2-000020BNV	Hillingdon Council	High Street sign post at junction with Pembroke Road	Roadside	Not annualised	0.952
HS2-000020BNW	Hillingdon Council	Signpost on A4020 Uxbridge Road at junction with Long Lane	Roadside	Not annualised	0.952

Site ID	Local authority	Site location	Site location type	2018 annualisation factor[17]	2018 bias adjustment factor
HS2-000020BNX	Hammersmith and Fulham Council	Signpost on A402 Goldhawk Road	Roadside	Not annualised	0.952
HS2-000020BNY	Camden Council	Junction of Mill Lane and Hillfield Road	Roadside	Not annualised	0.952
HS2-000020BNZ	Camden Council	Mansfield Road	Roadside	Not annualised	0.952
HS2-000020BP0	Camden Council	Junction of Camden Road and Torriano Avenue	Roadside	Not annualised	0.952
HS2-000020BP1	Westminster City Council	Lamp post on Brook Street	Roadside	Not annualised	0.952
HS2-000020BP2	Camden Council	Junction of Grays Inn Road and Holborn	Roadside	Not annualised	0.952
HS2-000020BP3	Westminster City Council	Triplicate site next to the Marylebone Road kerbside automatic monitoring stations	Kerbside	Not annualised	0.851
HS2-000020BP4	Camden Council	Triplicate site on Finchley Road next to Swiss Cottage kerbside automatic monitoring station	Kerbside	1.117	0.851
HS2-000020BP5	Camden Council	Triplicate site next to the Euston Road roadside automatic monitoring stations	Roadside	Not annualised	0.952
HS2-000020BP6	Ealing Council	Triplicate site next to the Ealing, Western Avenue Acton roadside automatic monitoring station	Roadside	Not annualised	0.952
HS2-000020BP7	Ealing Council	Triplicate site next to the Ealing, Hangar Lane Gyratory roadside automatic monitoring station	Roadside	Not annualised	0.952
HS2-000020BP8	Hillingdon Council	Triplicate site at South Ruislip roadside automatic monitoring station	Roadside	Not annualised	0.952
HS2-000020BP9	Camden Council	Triplicate site in Russell Square next to Bloomsbury urban background automatic monitoring station	Background	Not annualised	0.881
HS2-000020BPA	Kensington and Chelsea Council	Triplicate site at Sion Manning School, St. Charles' square, next to the North Kensington urban background automatic monitoring stations	Background	Not annualised	0.881
HS2-000020BPB	Camden Council	Camden High Street	Roadside	Not annualised	0.952
HS2-000020BPC	Camden Council	Castlehaven Road	Background	Not annualised	0.881
HS2-000020BPD	Camden Council	Prince of Wales Road	Roadside	Not annualised	0.952
HS2-000020BPE	Camden Council	Haverstock Hill	Roadside	Not annualised	0.952
HS2-000020BPF	Camden Council	Junction of Primrose Gardens and England's Lane	Background	Not annualised	0.881
HS2-000020BPG	Westminster City Council	Lamp post on St John's Wood Street	Roadside	Not annualised	0.952
HS2-000020BPH	Westminster City Council	Lamp post St John's Wood Terrace	Roadside	Not annualised	0.952

Site ID	Local authority	Site location	Site location type	2018 annualisation factor[17]	2018 bias adjustment factor
HS2-000020BPK	Hillingdon Council	Lamp post in crescent off Swakeleys Road	Roadside	Not annualised	0.952
HS2-000020BPL	Hillingdon Council	Warren Road sign post on corner of Swakeleys Road and Warren Road	Roadside	Not annualised	0.952
HS2-000020BPM	Brent Council	Lamp post along Gorefield Place near block of flats	Background	Not annualised	0.881
HS2-000020BPN	Hillingdon Council	Lamp post on B467	Roadside	Not annualised	0.952
HS2-000020BPO	Kensington and Chelsea Council	Lamp post off Silchester Road	Roadside	Not annualised	0.952
HS2-000020BPP	Hammersmith and Fulham Council	Sign post on A219 Scrubs Lane, South of Harrow Road	Roadside	Not annualised	0.952
HS2-000020BPQ	Kensington and Chelsea Council	Lamp post along Ladbroke Grove, near shops and bus stop at Trevorton Road junction	Roadside	0.962	0.952
HS2-000020BPR	Kensington and Chelsea Council	Lamp post at junction of Crowthorne Road and Bramley Road	Roadside	1.065	0.952
HS2-000020BPS	Kensington and Chelsea Council	Lamp post by fence on B450 Ladbroke Grove, south of A404 Harrow Road	Roadside	Not annualised	0.952
HS2-000020BPT	Hammersmith and Fulham Council	Controlled Zone/Zone Ends road sign on A219 Scrubs Lane, north of Hythe Road	Roadside	Not annualised	0.952
HS2-000020BPU	Camden Council	Junction of Gower Street and Grafton Way	Roadside	Not annualised	0.952
HS2-000020BPV	Camden Council	Phoenix Road	Background	0.968	0.881
HS2-000020BPW	Camden Council	Junction of Delancey Street and Arlington Road	Roadside	Not annualised	0.952
HS2-000020BPX	Camden Council	Netley Street	Background	Not annualised	0.881
HS2-000020BPY	Camden Council	Stanhope Street	Background	Not annualised	0.881
HS2-000020BPZ	Camden Council	Albany Street	Roadside	Not annualised	0.952
HS2-000020BQ0	Camden Council	Werrington Street	Background	Not annualised	0.881
HS2-000020BQ1	Camden Council	Polygon Road	Background	Not annualised	0.881
HS2-000020BQ2	Camden Council	Alexandra Place	Background	Not annualised	0.881
HS2-000020BQ3	Camden Council	Harrington Square	Kerbside	Not annualised	0.851
HS2-000020BQ4	Camden Council	Junction of North Gower Street and Starcross Street	Background	Not annualised	0.881
HS2-000020BQ5	Camden Council	Adelaide Road	Roadside	Not annualised	0.952
HS2-000020BQ6	Camden Council	Mornington Terrace	Background	Not annualised	0.881
HS2-000020BQ7	Camden Council	Arlington Road	Background	Not annualised	0.881
HS2-000020BQ8	Camden Council	Clarkson Row	Background	Not annualised	0.881
HS2-000020BQ9	Camden Council	Park Village East	Background	Not annualised	0.881
HS2-000020BQA	Camden Council	Eversholt Street	Kerbside	Not annualised	0.851
HS2-000020BQB	Camden Council	Junction of Harrington Street and Varndell Street	Background	Not annualised	0.881
HS2-000020BQC	Camden Council	Junction of Robert Street and Hampstead Road	Kerbside	Not annualised	0.851
HS2-000020BQD	Camden Council	Drummond Crescent	Background	Not annualised	0.881
HS2-000020BQE	Hammersmith and Fulham Council	Lamp post next to No 11 Wulfstan Street	Background	Not annualised	0.881

Site ID	Local authority	Site location	Site location type	2018 annualisation factor[17]	2018 bias adjustment factor
HS2-000020BQF	Ealing Council	Conway Drive sign post	Roadside	Not annualised	0.952
HS2-000020BQG	Ealing Council	Lamp post outside No 1. Wells House Road on Old Oak Common Lane	Roadside	Not annualised	0.952
HS2-000020BQH	Hillingdon Council	Lamp post on High Road Ickenham	Roadside	Not annualised	0.952
HS2-000020BQJ	Camden Council	Grafton Way	Background	Not annualised	0.881
HS2-000020BQK	Camden Council	Junction of Drummond Street and Cobourg Street	Background	1.013	0.881
HS2-000020BQL	Camden Council	Delancey Street	Roadside	Not annualised	0.952
HS2-000020BQN	Hillingdon Council	Lamp post on Park Road	Roadside	Not annualised	0.952
HS2-000020BQP	Hillingdon Council	Sign post on Long Lane	Roadside	Not annualised	0.952
HS2-000020BQQ	Kensington and Chelsea Council	Lamp post along Ladbroke Grove, near shops and bus stop at Trevorton Road junction	Kerbside	1.086	0.851
HS2-000020BQR	Camden Council	Colocated with Noise install on park road village	Background	1.047	0.881
HS2-000020BQS	Camden Council	Opposite Maria fidelis school on Pheonix Road	Background	0.993	0.881
HS2-000020BQT	Camden Council	Drummond Street	Background	0.924	0.881
HS2-000020BQU	Westminster City Council	Lamppost outside Edgware Road Station	Kerbside	Not annualised	0.851

Appendix D – 2018 Air quality monitoring results

HS2 NO_2 diffusion tube results

Table 8 – Annual mean NO_2 monitoring results for 2018

Site	Local authority	Site location	Site location type	2018 annual mean NO_2 concentration, annualised and bias adjusted (µg/m^3)
HS2-000020BM5	Camden Council	Junction of St Chad's Street and Grays Inn Road	Roadside	**50.4**
HS2-000020BM6	Camden Council	Brunswick Square	Roadside	**44.0**
HS2-000020BM7	Camden Council	Chalton Street	Roadside	**54.9**
HS2-000020BM8	Camden Council	Junction of Euston Square and Grafton Place	Roadside	**59.3**
HS2-000020BM9	Camden Council	Junction of Endsleigh Gardens and Upper Woburn Place	Roadside	**57.9**
HS2-000020BMA	Camden Council	Junction of Euston Road and Gower Street	Roadside	**58.7**
HS2-000020BMB	Camden Council	Whitfield Street	Background	39.0
HS2-000020BMC	Camden Council	Hampstead Road	Roadside	**61.4**
HS2-000020BMD	Westminster City Council	Lamp post on Park Crescent Road	Roadside	**66.2**
HS2-000020BME	Westminster City Council	Lamp post in between A501 and A4201	Roadside	**85.5**
HS2-000020BMF	Camden Council	Junction of Polygon Road and Ossulston Street	Background	29.7
HS2-000020BMH	Camden Council	Nash Street	Background	34.8
HS2-000020BMJ	Camden Council	Junction on Robert Street and Stanhope Street	Background	33.7
HS2-000020BMK	Camden Council	Junction of Plender Street and Bayham Street	Roadside	**49.6**
HS2-000020BML	Camden Council	Junction of Arlington Road and Mornington Crescent	Background	34.0
HS2-000020BMM	Camden Council	Junction of Bayham Street and Pratt Street	Roadside	**57.4**
HS2-000020BMN	Camden Council	Junction of Delancey Street and Albert Street	Roadside	39.5
HS2-000020BMQ	Camden Council	Junction of Parkway and Delancey Street	Roadside	**53.0**
HS2-000020BMR	Camden Council	Junction of Oval Road and Jamestown Road	Background	35.7
HS2-000020BMS	Camden Council	Junction of Chalk Farm Road and Castlehaven Road	Roadside	**54.6**
HS2-000020BMT	Camden Council	Junction of Camden Road and Camden Street	Kerbside	**48.7**
HS2-000020BMU	Camden Council	Junction of Southampton Road and Fleet Road	Roadside	**41.1**
HS2-000020BMV	Camden Council	Primrose Hill Road	Roadside	38.3
HS2-000020BMW	Camden Council	Junction of Finchley Road and Hilgrove Road	Roadside	**52.9**
HS2-000020BMX	Westminster City Council	Sign post by roundabout on A5205	Roadside	**49.5**

Site	Local authority	Site location	Site location type	2018 annual mean NO_2 concentration, annualised and bias adjusted (µg/m^3)
HS2-000020BMY	Westminster City Council	Lamp post between Blomfield Road and Edgware Road	Roadside	**55.9**
HS2-000020BMZ	Camden Council	Junction of Finchley Road and Hendon Way	Roadside	**81.9**
HS2-000020BN0	Westminster City Council	Lamp post on Ladbroke Grove	Roadside	**48.0**
HS2-000020BN1	Kensington and Chelsea Council	Sign post on St Ann's Villas	Roadside	**44.5**
HS2-000020BN2	Hammersmith and Fulham Council	Lamp post on Du Cane Road	Roadside	**55.1**
HS2-000020BN3	Brent Council	Sign post on High Street Harlesden	Roadside	**56.1**
HS2-000020BN4	Hammersmith and Fulham Council	End of cycle lane sign on Old Oak Road	Roadside	**51.9**
HS2-000020BN5	Ealing Council	Sign post on Victoria Road	Roadside	**51.9**
HS2-000020BN7	Ealing Council	The Approach street sign	Roadside	**56.0**
HS2-000020BNA	Camden Council	Junction of Regent's Park Road and Rothwell Street	Roadside	36.5
HS2-000020BNB	Camden Council	Junction of Gloucester Gate Bridge and Park Village East	Roadside	**43.5**
HS2-000020BNC	Camden Council	Junction of Outer Circle and Gloucester Gate	Background	30.2
HS2-000020BND	Westminster City Council	Outer Circle Regent's Park	Kerbside	35.0
HS2-000020BNF	Kensington and Chelsea Council	Unsuitable for long vehicles sign on St Ann's Villas	Roadside	**46.8**
HS2-000020BNG	Brent Council	Lamp post on Donnington Road	Roadside	39.6
HS2-000020BNH	Camden Council	Junction of Parkway and Albert Street	Kerbside	38.2
HS2-000020BNJ	Westminster City Council	Light post on Park Road	Roadside	**55.0**
HS2-000020BNK	Westminster City Council	London Underground sign outside Edgware Rd Station	Roadside	**74.2**
HS2-000020BNL	Westminster City Council	Lamp post on Penfold Street	Background	38.5
HS2-000020BNN	Camden Council	Lincoln's Inn Fields	Background	35.6
HS2-000020BNQ	Camden Council	Camley Street	Background	37.4
HS2-000020BNR	Hammersmith and Fulham Council	Lamp posts in Shepherd's Bush Common	Background	38.9
HS2-000020BNS	Brent Council	Lamp post on Tower Road by Willesden Jewish Cemetery	Background	27.4
HS2-000020BNT	Hillingdon Council	Lamp post on Pembroke Road	Background	25.3
HS2-000020BNU	Hillingdon Council	Cowley Road sign post at junction with Hillingdon Road	Roadside	**45.8**
HS2-000020BNV	Hillingdon Council	High Street sign post at junction with Pembroke Road	Roadside	**43.0**
HS2-000020BNW	Hillingdon Council	Signpost on A4020 Uxbridge Road at junction with Long Lane	Roadside	**46.4**
HS2-000020BNX	Hammersmith and Fulham Council	Signpost on A402 Goldhawk Road	Roadside	**41.8**
HS2-000020BNY	Camden Council	Junction of Mill Lane and Hillfield Road	Roadside	**41.8**
HS2-000020BNZ	Camden Council	Mansfield Road	Roadside	35.8
HS2-000020BP0	Camden Council	Junction of Camden Road and Torriano Avenue	Roadside	**61.1**
HS2-000020BP1	Westminster City Council	Lamp post on Brook Street	Roadside	**63.3**
HS2-000020BP2	Camden Council	Junction of Grays Inn Road and Holborn	Roadside	**48.7**

Site	Local authority	Site location	Site location type	2018 annual mean NO_2 concentration, annualised and bias adjusted (µg/m^3)
HS2-000020BP3	Westminster City Council	Triplicate site next to the Marylebone Road kerbside automatic monitoring stations	Kerbside	**69.9**
HS2-000020BP4	Camden Council	Triplicate site on Finchley Road next to Swiss Cottage kerbside automatic monitoring station	Kerbside	**60.6**
HS2-000020BP5	Camden Council	Triplicate site next to the Euston Road roadside automatic monitoring stations	Roadside	**80.8**
HS2-000020BP6	Ealing Council	Triplicate site next to the Ealing, Western Avenue Acton roadside automatic monitoring station	Roadside	**56.2**
HS2-000020BP7	Ealing Council	Triplicate site next to the Ealing, Hangar Lane Gyratory roadside automatic monitoring station	Roadside	**70.2**
HS2-000020BP8	Hillingdon Council	Triplicate site at South Ruislip roadside automatic monitoring station	Roadside	37.8
HS2-000020BP9	Camden Council	Triplicate site in Russell Square next to Bloomsbury urban background automatic monitoring station	Background	35.7
HS2-000020BPA	Kensington and Chelsea Council	Triplicate site at Sion Manning School, St. Charles' square, next to the North Kensington urban background automatic monitoring stations	Background	28.4
HS2-000020BPB	Camden Council	Camden High Street	Roadside	**69.1**
HS2-000020BPC	Camden Council	Castlehaven Road	Background	31.5
HS2-000020BPD	Camden Council	Prince of Wales Road	Roadside	33.8
HS2-000020BPE	Camden Council	Haverstock Hill	Roadside	**43.0**
HS2-000020BPF	Camden Council	Junction of Primrose Gardens and England's Lane	Background	31.9
HS2-000020BPG	Westminster City Council	Lamp post on St John's Wood Street	Roadside	**43.4**
HS2-000020BPH	Westminster City Council	Lamp post St John's Wood Terrace	Roadside	**42.7**
HS2-000020BPK	Hillingdon Council	Lamp post in crescent off Swakeleys Road	Roadside	35.8
HS2-000020BPL	Hillingdon Council	Warren Road sign post on corner of Swakeleys Road and Warren Road	Roadside	**41.3**
HS2-000020BPM	Brent Council	Lamp post along Gorefield Place near block of flats	Background	27.8
HS2-000020BPN	Hillingdon Council	Lamp post on B467	Roadside	31.0
HS2-000020BPO	Kensington and Chelsea Council	Lamp post off Silchester Road	Roadside	38.7
HS2-000020BPP	Hammersmith and Fulham Council	Sign post on A219 Scrubs Lane, South of Harrow Road	Roadside	**46.3**
HS2-000020BPQ	Kensington and Chelsea Council	Lamp post along Ladbroke Grove, near shops and bus stop at Trevorton Road junction	Roadside	38.3
HS2-000020BPR	Kensington and Chelsea Council	Lamp post at junction of Crowthorne Road and Bramley Road	Roadside	**43.7**
HS2-000020BPS	Kensington and Chelsea Council	Lamp post by fence on B450 Ladbroke Grove, south of A404 Harrow Road	Roadside	**45.6**
HS2-000020BPT	Hammersmith and Fulham Council	Controlled Zone/Zone Ends road sign on A219 Scrubs Lane, north of Hythe Road	Roadside	**47.6**
HS2-000020BPU	Camden Council	Junction of Gower Street and Grafton Way	Roadside	**50.5**

Site	Local authority	Site location	Site location type	2018 annual mean NO_2 concentration, annualised and bias adjusted (µg/m^3)
HS2-000020BPV	Camden Council	Phoenix Road	Background	30.2
HS2-000020BPW	Camden Council	Junction of Delancey Street and Arlington Road	Roadside	**45.0**
HS2-000020BPX	Camden Council	Netley Street	Background	35.9
HS2-000020BPY	Camden Council	Stanhope Street	Background	32.2
HS2-000020BPZ	Camden Council	Albany Street	Roadside	**40.4**
HS2-000020BQ0	Camden Council	Werrington Street	Background	32.1
HS2-000020BQ1	Camden Council	Polygon Road	Background	34.0
HS2-000020BQ2	Camden Council	Alexandra Place	Background	28.7
HS2-000020BQ3	Camden Council	Harrington Square	Kerbside	**44.6**
HS2-000020BQ4	Camden Council	Junction of North Gower Street and Starcross Street	Background	37.7
HS2-000020BQ5	Camden Council	Adelaide Road	Roadside	39.9
HS2-000020BQ6	Camden Council	Mornington Terrace	Background	33.2
HS2-000020BQ7	Camden Council	Arlington Road	Background	32.1
HS2-000020BQ8	Camden Council	Clarkson Row	Background	32.6
HS2-000020BQ9	Camden Council	Park Village East	Background	30.8
HS2-000020BQA	Camden Council	Eversholt Street	Kerbside	**49.0**
HS2-000020BQB	Camden Council	Junction of Harrington Street and Varndell Street	Background	35.0
HS2-000020BQC	Camden Council	Junction of Robert Street and Hampstead Road	Kerbside	**41.3**
HS2-000020BQD	Camden Council	Drummond Crescent	Background	39.5
HS2-000020BQE	Hammersmith and Fulham Council	Lamp post next to No 11 Wulfstan Street	Background	32.6
HS2-000020BQF	Ealing Council	Conway Drive sign post	Roadside	**58.5**
HS2-000020BQG	Ealing Council	Lamp post outside No 1. Wells House Road on Old Oak Common Lane	Roadside	**58.0**
HS2-000020BQH	Hillingdon Council	Lamp post on High Road Ickenham	Roadside	**41.6**
HS2-000020BQJ	Camden Council	Grafton Way	Background	**51.2**
HS2-000020BQK	Camden Council	Junction of Drummond Street and Cobourg Street	Background	37.4
HS2-000020BQL	Camden Council	Delancey Street	Roadside	**51.0**
HS2-000020BQN	Hillingdon Council	Lamp post on Park Road	Roadside	**50.1**
HS2-000020BQP	Hillingdon Council	Sign post on Long Lane	Roadside	**41.8**
HS2-000020BQQ	Kensington and Chelsea Council	Lamp post along Ladbroke Grove, near shops and bus stop at Trevorton Road junction	Kerbside	**48.2**
HS2-000020BQR	Camden Council	Colocated with Noise install on park road village	Background	34.8
HS2-000020BQS	Camden Council	Opposite Maria fidelis school on Pheonix Road	Background	33.1
HS2-000020BQT	Camden Council	Drummond Street	Background	38.8
HS2-000020BQU	Westminster City Council	Lamppost outside Edgware Road Station	Kerbside	**61.9**

Notes:

Exceedances of the NO_2 annual mean air quality standard of 40 µg/m^3 are shown in bold.

Table 9 – Full monthly raw NO_2 monitoring results for 2018 (prior to annualisation and bias adjustment)

Site ID	Local authority	Site location	Site location type	NO_2 concentration (µg/m^3)													Number of months of data
				Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Mean	
HS2-000020BM5	Camden Council	Junction of St Chad's Street and Grays Inn Road	Roadside	52.5	57.5	53.4	51.1	61.2	51.2	59.6	44.6	46.1	54.1	57.2	46.2	52.9	12
HS2-000020BM6	Camden Council	Brunswick Square	Roadside	59.6	40.9	53.1	41.0	42.7	31.5	48.3	43.9	45.6	49.0	53.5	45.8	46.2	12
HS2-000020BM7	Camden Council	Chalton Street	Roadside	62.0	64.9	55.0	53.1	58.7	53.2	60.1	45.6	Tube missing	57.7	66.9	56.7	57.6	11
HS2-000020BM8	Camden Council	Junction of Euston Square and Grafton Place	Roadside	66.4	64.3	62.8	Tube missing	64.8	59.9	67.9	57.5	62.0	58.5	64.2	56.4	62.2	11
HS2-000020BM9	Camden Council	Junction of Endsleigh Gardens and Upper Woburn Place	Roadside	73.7	80.4	58.9	57.2	68.1	64.8	63.5	49.2	52.1	60.5	52.0	49.0	60.8	12
HS2-000020BMA	Camden Council	Junction of Euston Road and Gower Street	Roadside	71.1	69.3	59.5	56.9	66.0	51.6	64.7	55.6	61.6	65.0	61.3	56.5	61.6	12
HS2-000020BMB	Camden Council	Whitfield Street	Background	56.0	52.3	50.2	41.6	42.7	37.7	39.2	31.4	37.6	46.6	52.4	43.4	44.3	12
HS2-000020BMC	Camden Council	Hampstead Road	Roadside	59.5	59.1	61.2	61.5	72.9	61.1	75.6	56.5	70.0	67.8	68.3	60.0	64.5	12
HS2-000020BMD	Westminster City Council	Lamp post on Park Crescent Road	Roadside	Tube missing	73.3	74.8	62.9	76.8	78.4	82.5	60.7	59.1	71.4	66.1	59.0	69.6	11
HS2-000020BME	Westminster City Council	Lamp post in between A501 and A4201	Roadside	89.4	99.4	91.2	78.7	101.8	100.3	108.5	80.7	81.5	86.6	85.0	74.8	89.8	12
HS2-000020BMF	Camden Council	Junction of Polygon Road and Ossulston Street	Background	36.8	41.6	37.5	28.2	35.9	29.2	28.5	26.6	30.8	34.3	40.7	33.8	33.7	12
HS2-000020BMH	Camden Council	Nash Street	Background	42.2	42.3	42.5	37.0	38.5	Tube missing	Tube missing	35.0	36.3	41.8	42.1	37.0	39.5	10
HS2-000020BMJ	Camden Council	Junction on Robert Street and Stanhope Street	Background	48.3	45.2	42.0	38.6	39.5	35.4	37.7	32.3	33.6	36.6	37.5	32.4	38.3	12
HS2-000020BMK	Camden Council	Junction of Plender Street and Bayham Street	Roadside	61.4	56.3	53.6	46.9	56.5	43.3	48.3	50.7	50.6	58.7	59.2	40.0	52.1	12
HS2-000020BML	Camden Council	Junction of Arlington Road and Mornington Crescent	Background	46.8	43.5	45.0	39.7	38.8	29.6	29.5	33.5	34.4	39.2	42.8	40.6	38.6	12
HS2-000020BMM	Camden Council	Junction of Bayham Street and Pratt Street	Roadside	85.2	63.8	57.2	64.5	61.3	45.3	57.0	61.5	58.9	58.8	55.0	54.9	60.3	12

Site ID	Local authority	Site location	Site location type	NO_2 concentration (µg/m^3)													Number of months of data
				Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Mean	
HS2-000020BMN	Camden Council	Junction of Delancey Street and Albert Street	Roadside	50.4	44.2	46.8	39.7	43.1	36.2	44.7	36.5	41.9	42.1	34.7	37.9	41.5	12
HS2-000020BMQ	Camden Council	Junction of Parkway and Delancey Street	Roadside	Tube missing	60.5	58.1	53.2	62.5	55.9	58.8	49.9	48.2	59.4	60.4	45.7	55.7	11
HS2-000020BMR	Camden Council	Junction of Oval Road and Jamestown Road	Background	46.9	43.4	48.6	38.3	39.2	34.5	42.6	33.9	41.3	40.9	41.1	35.3	40.5	12
HS2-000020BMS	Camden Council	Junction of Chalk Farm Road and Castlehaven Road	Roadside	56.7	61.2	57.9	58.0	66.1	53.9	65.7	52.6	52.6	57.9	55.3	50.3	57.4	12
HS2-000020BMT	Camden Council	Junction of Camden Road and Camden Street	Kerbside	63.4	62.3	58.4	58.4	68.3	50.5	57.3	51.2	55.9	61.1	48.2	51.3	57.2	12
HS2-000020BMU	Camden Council	Junction of Southampton Road and Fleet Road	Roadside	51.4	49.7	47.1	44.2	47.5	42.1	44.9	29.9	40.0	43.4	36.6	41.6	43.2	12
HS2-000020BMV	Camden Council	Primrose Hill Road	Roadside	49.2	45.9	42.9	Tube missing	33.7	37.6	38.4	33.9	37.3	46.4	37.2	Tube missing	40.2	10
HS2-000020BMW	Camden Council	Junction of Finchley Road and Hilgrove Road	Roadside	55.1	70.3	53.4	55.3	64.6	57.2	Tube missing	56.6	58.7	50.8	37.4	52.1	55.6	11
HS2-000020BMX	Westminster City Council	Sign post by roundabout on A5205	Roadside	57.2	47.6	52.2	49.0	52.2	46.8	58.7	53.5	51.5	60.8	51.8	42.7	52.0	12
HS2-000020BMY	Westminster City Council	Lamp post between Blomfield Road and Edgware Road	Roadside	71.3	55.8	57.2	56.0	73.5	53.7	63.9	54.5	50.4	60.5	57.8	49.5	58.7	12
HS2-000020BMZ	Camden Council	Junction of Finchley Road and Hendon Way	Roadside	99.3	87.7	83.9	78.7	93.3	84.1	100.1	81.7	78.6	70.8	87.4	No data	86.0	11
HS2-000020BN0	Westminster City Council	Lamp post on Ladbroke Grove	Roadside	57.9	51.5	48.2	51.1	62.2	53.2	48.8	43.8	42.1	45.2	52.7	47.8	50.4	12
HS2-000020BN1	Kensington and Chelsea Council	Sign post on St Ann's Villas	Roadside	57.4	49.7	51.3	49.9	50.5	40.6	52.1	36.7	45.5	28.6	54.0	44.5	46.7	12
HS2-000020BN2	Hammersmith and Fulham Council	Lamp post on Du Cane Road	Roadside	60.8	Tube missing	66.9	59.7	59.1	47.2	63.5	54.1	57.1	53.2	59.5	54.7	57.8	11
HS2-000020BN3	Brent Council	Sign post on High Street Harlesden	Roadside	66.8	55.4	54.4	57.8	62.9	55.6	62.5	56.5	57.6	62.4	61.3	53.3	58.9	12
HS2-000020BN4	Hammersmith and Fulham Council	End of cycle lane sign on Old Oak Road	Roadside	56.3	58.7	66.8	49.1	68.0	57.5	54.9	46.3	43.2	55.1	55.3	42.1	54.4	12
HS2-000020BN5	Ealing Council	Sign post on Victoria Road	Roadside	56.9	54.3	67.0	51.4	55.1	49.7	57.8	46.3	49.0	55.9	60.5	50.0	54.5	12

Site ID	Local authority	Site location	Site location type	NO_2 concentration (µg/m^3)													Number of months of data
				Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Mean	
HS2-000020BN7	Ealing Council	The Approach street sign	Roadside	76.9	57.2	56.2	64.7	52.0	40.2	64.7	59.8	61.0	60.1	54.9	57.8	58.8	12
HS2-000020BNA	Camden Council	Junction of Regent's Park Road and Rothwell Street	Roadside	49.8	43.5	38.8	38.6	32.3	26.4	36.4	33.9	35.4	43.3	44.1	37.4	38.3	12
HS2-000020BNB	Camden Council	Junction of Gloucester Gate Bridge and Park Village East	Roadside	56.4	45.6	50.8	44.1	46.7	37.9	47.0	No data	No data	No data	44.3	38.4	45.7	9
HS2-000020BNC	Camden Council	Junction of Outer Circle and Gloucester Gate	Background	36.3	36.6	41.8	30.8	39.5	36.1	29.5	24.9	Tube missing	Tube missing	36.6	30.6	34.3	10
HS2-000020BND	Westminster City Council	Outer Circle Regent's Park	Kerbside	53.6	45.6	44.9	35.4	34.7	28.1	36.7	Tube missing	42.7	No data	50.5	38.7	41.1	10
HS2-000020BNF	Kensington and Chelsea Council	Unsuitable for long vehicles sign on St Ann's Villas	Roadside	Tube missing	Tube missing	54.5	47.4	44.6	39.5	44.6	36.5	39.5	Tube missing	Tube missing	Tube missing	43.8	7
HS2-000020BNG	Brent Council	Lamp post on Donnington Road	Roadside	49.3	40.8	52.6	37.9	43.3	33.1	38.5	28.8	41.2	No data	46.9	44.6	41.5	11
HS2-000020BNH	Camden Council	Junction of Parkway and Albert Street	Kerbside	55.9	50.7	Tube missing	42.8	51.5	42.2	42.1	36.7	43.4	41.8	44.6	42.4	44.9	11
HS2-000020BNJ	Westminster City Council	Light post on Park Road	Roadside	67.6	57.5	No data	59.2	57.7	56.0	63.4	54.3	55.3	57.8	58.7	48.0	57.8	11
HS2-000020BNK	Westminster City Council	London Underground sign outside Edgware Rd Station	Roadside	82.2	79.8	79.1	57.2	94.9	87.8	78.3	73.8	68.3	Monitoring stopped in September 2018			77.9	9
HS2-000020BNL	Westminster City Council	Lamp post on Penfold Street	Background	55.9	43.4	51.2	46.6	43.0	34.7	41.7	34.5	40.3	Tube missing	47.3	42.1	43.7	11
HS2-000020BNN	Camden Council	Lincoln's Inn Fields	Background	Tube missing	Tube missing	Tube missing	50.1	42.1	24.5	39.5	37.7	43.4	42.0	42.5	42.0	40.4	9
HS2-000020BNQ	Camden Council	Camley Street	Background	Tube missing	50.9	49.2	Tube missing	41.1	Tube missing	35.5	34.8	36.6	42.5	46.5	45.2	42.5	9
HS2-000020BNR	Hammersmith and Fulham Council	Lamp posts in Shepherd's Bush Common	Background	54.1	51.1	49.3	40.7	48.7	39.8	37.0	Tube missing	40.7	38.8	47.0	38.0	44.1	11
HS2-000020BNS	Brent Council	Lamp post on Tower Road by Willesden Jewish Cemetery	Background	42.4	38.8	37.6	30.9	Tube missing	22.0	23.3	23.8	Tube missing	26.4	32.8	32.9	31.1	10

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				Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Mean	
HS2-000020BNT	Hillingdon Council	Lamp post on Pembroke Road	Background	38.9	34.9	34.0	28.8	24.4	21.5	23.2	24.0	24.4	26.4	34.6	29.7	28.7	12
HS2-000020BNU	Hillingdon Council	Cowley Road sign post at junction with Hillingdon Road	Roadside	58.2	52.3	51.1	49.1	48.4	38.3	51.4	42.0	48.7	47.8	45.7	44.4	48.1	12
HS2-000020BNV	Hillingdon Council	High Street sign post at junction with Pembroke Road	Roadside	48.4	51.1	49.9	45.4	48.6	Tube missing	46.9	40.9	38.8	40.7	47.2	39.2	45.2	11
HS2-000020BNW	Hillingdon Council	Signpost on A4020 Uxbridge Road at junction with Long Lane	Roadside	50.1	56.3	56.7	53.2	59.7	53.4	49.9	38.2	36.6	40.8	44.1	45.6	48.7	12
HS2-000020BNX	Hammersmith and Fulham Council	Signpost on A402 Goldhawk Road	Roadside	54.3	46.3	53.2	43.3	47.8	42.1	45.6	38.9	36.4	39.6	40.8	37.9	43.9	12
HS2-000020BNY	Camden Council	Junction of Mill Lane and Hillfield Road	Roadside	52.4	48.8	50.2	35.2	46.9	37.4	43.0	39.7	42.2	38.5	45.3	47.0	43.9	12
HS2-000020BNZ	Camden Council	Mansfield Road	Roadside	46.2	44.0	45.7	39.1	32.4	27.1	35.2	34.4	36.5	38.6	34.8	37.0	37.6	12
HS2-000020BP0	Camden Council	Junction of Camden Road and Torriano Avenue	Roadside	68.3	74.2	68.3	66.1	69.7	61.5	67.6	63.1	66.9	50.4	60.4	53.6	64.2	12
HS2-000020BP1	Westminster City Council	Lamp post on Brook Street	Roadside	74.8	Tube missing	74.7	66.6	63.3	60.4	75.1	61.8	62.2	52.6	73.3	66.8	66.5	11
HS2-000020BP2	Camden Council	Junction of Grays Inn Road and Holborn	Roadside	Tube missing	57.4	55.3	52.7	54.0	Tube missing	54.7	37.8	52.9	46.4	48.9	51.4	51.1	10
HS2-000020BP3	Westminster City Council	Triplicate site next to the Marylebone Road kerbside automatic monitoring stations	Kerbside	103.0	92.0	78.0	78.0	82.0	73.0	96.0	75.0	79.0	76.0	67.2	78.2	72.7	12
HS2-000020BP4	Camden Council	Triplicate site on Finchley Road next to Swiss Cottage kerbside automatic monitoring station	Kerbside	102.7	91.5	78.5	78.4	81.9	73.1	95.6	75.2	78.7	76.1	76.7	77.2	82.1	8
HS2-000020BP5	Camden Council	Triplicate site next to the Euston Road roadside automatic monitoring stations	Roadside	95.0	82.0	73.0	59.8	76.6	67.5	74.6	60.6	42.7	67.1	61.2	69.0	63.8	11
HS2-000020BP6	Ealing Council	Triplicate site next to the Ealing, Western Avenue	Roadside	95.4	82.4	73.3	70.2	102.1	96.0	110.6	87.4	Tube missing	71.6	75.2	68.7	84.8	11

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				Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Mean	
		Acton roadside automatic monitoring station															
HS2-000020BP7	Ealing Council	Triplicate site next to the Ealing, Hangar Lane Gyratory roadside automatic monitoring station	Roadside	58.4	57.9	52.4	54.4	61.8	50.8	76.2	59.9	78.0	57.8	61.5	58.1	59.0	12
HS2-000020BP8	Hillingdon Council	Triplicate site at South Ruislip roadside automatic monitoring station	Roadside	76.0	67.8	62.9	71.9	74.7	58.5	98.6	82.4	78.1	68.0	74.7	70.9	73.7	11
HS2-000020BP9	Camden Council	Triplicate site in Russell Square next to Bloomsbury urban background automatic monitoring station	Background	47.0	37.3	36.0	34.9	45.9	39.9	46.0	36.0	37.6	36.3	45.2	41.5	39.7	12
HS2-000020BPA	Kensington and Chelsea Council	Triplicate site at Sion Manning School, St. Charles' square, next to the North Kensington urban background automatic monitoring stations	Background	47.4	46.3	42.8	40.6	41.0	38.6	34.4	29.7	38.1	38.7	41.7	47.1	40.5	12
HS2-000020BPB	Camden Council	Camden High Street	Roadside	86.5	64.2	59.8	72.8	76.4	64.8	75.5	71.7	89.2	77.4	61.6	70.7	72.5	12
HS2-000020BPC	Camden Council	Castlehaven Road	Background	40.6	43.0	36.1	35.7	33.0	26.1	33.7	27.0	39.1	40.0	37.5	37.1	35.8	12
HS2-000020BPD	Camden Council	Prince of Wales Road	Roadside	40.1	39.7	40.6	37.0	33.5	29.2	31.4	27.5	33.4	36.4	40.9	36.2	35.5	12
HS2-000020BPE	Camden Council	Haverstock Hill	Roadside	48.9	45.6	45.9	48.4	38.5	38.7	43.5	40.8	46.8	50.1	46.0	48.8	45.2	12
HS2-000020BPF	Camden Council	Junction of Primrose Gardens and England's Lane	Background	41.9	40.4	36.5	34.7	33.5	31.6	31.0	28.5	37.3	36.5	43.4	39.0	36.2	12
HS2-000020BPG	Westminster City Council	Lamp post on St John's Wood Street	Roadside	49.9	50.7	52.3	38.8	50.0	46.3	40.4	38.7	36.0	48.7	53.9	41.2	45.6	12
HS2-000020BPH	Westminster City Council	Lamp post St John's Wood Terrace	Roadside	52.9	47.6	46.1	40.0	40.7	35.9	50.9	40.0	45.6	48.7	47.3	42.5	44.8	12
HS2-000020BPK	Hillingdon Council	Lamp post in crescent off Swakeleys Road	Roadside	No data	41.7	38.8	33.7	34.9	32.3	41.8	34.4	31.8	45.7	41.2	36.7	37.6	11

Site ID	Local authority	Site location	Site location type	NO_2 concentration (µg/m^3)													Number of months of data
				Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Mean	
HS2-000020BPL	Hillingdon Council	Warren Road sign post on corner of Swakeleys Road and Warren Road	Roadside	No data	47.6	45.9	42.9	39.5	33.5	52.0	44.1	Tube missing	Tube missing	46.2	38.3	43.3	9
HS2-000020BPM	Brent Council	Lamp post along Gorefield Place near block of flats	Background	40.3	39.3	34.3	28.4	31.0	22.2	25.2	26.2	28.7	32.3	36.8	34.2	31.6	12
HS2-000020BPN	Hillingdon Council	Lamp post on B467	Roadside	No data	Tube missing	35.3	33.9	32.2	27.3	32.2	30.3	27.6	32.9	39.5	34.2	32.6	10
HS2-000020BPO	Kensington and Chelsea Council	Lamp post off Silchester Road	Roadside	42.5	47.7	41.7	40.3	46.6	34.0	36.8	35.5	35.4	Tube missing	44.8	42.2	40.7	11
HS2-000020BPP	Hammersmith and Fulham Council	Sign post on A219 Scrubs Lane, South of Harrow Road	Roadside	50.1	54.3	57.1	51.8	49.6	37.9	48.5	42.9	42.4	49.0	54.3	44.8	48.6	12
HS2-000020BPQ	Kensington and Chelsea Council	Lamp post along Ladbroke Grove, near shops and bus stop at Trevorton Road junction	Roadside	43.3	Tube missing	47.0	37.3	42.4	38.9	Monitoring stopped in June 2018						41.8	5
HS2-000020BPR	Kensington and Chelsea Council	Lamp post at junction of Crowthorne Road and Bramley Road	Roadside	Tube missing	45.6	46.4	40.9	45.6	39.2	44.7	45.9	36.7	Tube missing	Tube missing	Tube missing	43.1	8
HS2-000020BPS	Kensington and Chelsea Council	Lamp post by fence on B450 Ladbroke Grove, south of A404 Harrow Road	Roadside	50.6	52.8	53.7	53.6	59.6	39.7	45.7	28.6	40.3	49.8	54.0	46.3	47.9	12
HS2-000020BPT	Hammersmith and Fulham Council	Controlled Zone/Zone Ends road sign on A219 Scrubs Lane, north of Hythe Road	Roadside	56.3	50.3	51.1	49.9	Tube missing	43.1	51.3	45.6	40.2	52.6	59.4	Tube missing	50.0	10
HS2-000020BPU	Camden Council	Junction of Gower Street and Grafton Way	Roadside	52.7	48.3	51.1	52.1	60.3	44.4	58.7	Tube missing	47.2	60.3	54.2	53.7	53.0	11
HS2-000020BPV	Camden Council	Phoenix Road	Background	44.6	23.4	40.3	40.5	36.5	28.1	34.5	Monitoring stopped in July 2018					35.4	7
HS2-000020BPW	Camden Council	Junction of Delancey Street and Arlington Road	Roadside	48.2	50.7	50.5	37.7	59.5	44.2	51.0	41.4	42.2	47.3	51.4	43.2	47.3	12
HS2-000020BPX	Camden Council	Netley Street	Background	42.6	46.4	44.8	39.2	48.1	34.1	37.6	32.2	37.2	43.7	46.4	36.8	40.8	12
HS2-000020BPY	Camden Council	Stanhope Street	Background	49.8	43.2	41.3	36.0	38.6	29.0	25.9	29.0	34.1	37.9	36.4	37.7	36.6	12

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				Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Mean	
HS2-000020BPZ	Camden Council	Albany Street	Roadside	49.0	46.4	51.2	42.6	38.1	31.2	41.4	40.1	31.5	47.2	49.5	41.0	42.4	12
HS2-000020BQ0	Camden Council	Werrington Street	Background	42.4	45.9	40.1	37.5	34.5	25.6	33.5	28.1	31.3	36.8	43.7	37.4	36.4	12
HS2-000020BQ1	Camden Council	Polygon Road	Background	42.0	50.0	44.5	35.9	36.2	27.7	32.0	31.7	34.1	39.2	50.0	40.4	38.6	12
HS2-000020BQ2	Camden Council	Alexandra Place	Background	36.5	36.8	36.9	33.2	34.1	25.3	28.3	26.5	25.1	34.8	41.5	32.3	32.6	12
HS2-000020BQ3	Camden Council	Harrington Square	Kerbside	59.4	53.0	53.2	55.4	58.1	48.6	55.4	44.1	45.9	53.2	56.4	46.5	52.4	12
HS2-000020BQ4	Camden Council	Junction of North Gower Street and Starcross Street	Background	50.3	54.8	44.4	44.1	43.9	32.7	37.4	34.8	37.6	47.5	44.5	41.0	42.7	12
HS2-000020BQ5	Camden Council	Adelaide Road	Roadside	52.8	45.0	43.8	42.3	40.6	33.6	41.2	35.8	37.2	48.0	41.4	40.8	41.9	12
HS2-000020BQ6	Camden Council	Mornington Terrace	Background	47.4	40.8	45.2	37.1	37.2	33.1	33.3	30.7	33.7	36.3	38.4	38.6	37.6	12
HS2-000020BQ7	Camden Council	Arlington Road	Background	42.3	45.5	40.6	39.4	35.6	26.8	34.1	31.8	31.7	39.3	35.4	35.1	36.5	12
HS2-000020BQ8	Camden Council	Clarkson Row	Background	49.7	45.9	39.3	30.2	34.8	28.1	33.2	27.8	33.4	Tube missing	44.9	39.3	37.0	11
HS2-000020BQ9	Camden Council	Park Village East	Background	43.6	48.2	32.1	37.0	33.6	25.6	34.0	25.1	28.9	36.4	41.0	34.0	34.9	12
HS2-000020BQA	Camden Council	Eversholt Street	Kerbside	62.5	69.5	61.1	65.0	59.5	43.2	60.7	51.8	54.9	54.4	53.1	55.6	57.6	12
HS2-000020BQB	Camden Council	Junction of Harrington Street and Varndell Street	Background	50.8	47.9	47.1	39.3	36.3	Tube missing	31.4	29.7	31.6	40.3	47.7	35.3	39.8	11
HS2-000020BQC	Camden Council	Junction of Robert Street and Hampstead Road	Kerbside	53.2	55.0	54.8	51.7	54.5	45.0	48.8	36.8	39.5	42.5	50.9	49.5	48.5	12
HS2-000020BQD	Camden Council	Drummond Crescent	Background	52.6	54.9	49.5	Tube missing	39.7	37.7	40.7	38.3	39.2	41.9	54.2	Tube missing	44.9	10
HS2-000020BQE	Hammersmith and Fulham Council	Lamp post next to No 11 Wulfstan Street	Background	40.6	38.5	40.1	38.6	36.7	31.3	36.0	33.3	33.2	39.1	39.8	37.4	37.1	12
HS2-000020BQF	Ealing Council	Conway Drive sign post	Roadside	70.8	63.0	69.5	62.7	59.9	59.8	67.5	57.2	52.3	61.1	58.7	54.6	61.4	12
HS2-000020BQG	Ealing Council	Lamp post outside No 1. Wells House Road on Old Oak Common Lane	Roadside	74.9	75.9	56.7	69.6	58.2	47.6	63.9	49.3	57.1	56.7	62.5	58.2	60.9	12

Site ID	Local authority	Site location	Site location type	NO_2 concentration (µg/m^3)													Number of months of data
				Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Mean	
HS2-000020BQH	Hillingdon Council	Lamp post on High Road Ickenham	Roadside	49.4	49.4	42.6	41.3	46.9	39.4	49.4	37.1	36.5	44.2	47.9	40.2	43.7	12
HS2-000020BQJ	Camden Council	Grafton Way	Background	72.2	75.2	56.2	49.3	61.3	54.9	61.6	49.4	54.7	38.1	63.7	60.6	58.1	12
HS2-000020BQK	Camden Council	Junction of Drummond Street and Cobourg Street	Background	49.4	53.9	47.2	36.3	42.0	34.7	37.2	34.5	Monitoring stopped in August 2018				41.9	8
HS2-000020BQL	Camden Council	Delancey Street	Roadside	59.7	54.7	52.8	45.0	63.5	59.2	58.9	47.3	45.3	50.9	56.9	48.1	53.5	12
HS2-000020BQN	Hillingdon Council	Lamp post on Park Road	Roadside	No data	51.7	54.4	48.7	56.4	46.5	59.9	47.6	50.1	51.0	62.3	49.4	52.6	11
HS2-000020BQP	Hillingdon Council	Sign post on Long Lane	Roadside	No data	44.7	49.6	36.9	50.3	38.2	50.5	38.5	37.7	43.2	52.9	40.3	43.9	11
HS2-000020BQQ	Kensington and Chelsea Council	Lamp post along Ladbroke Grove, near shops and bus stop at Trevorton Road junction	Kerbside	Monitoring did not commence until June 2018						51.5	50.1	49.5	50.1	54.9	56.7	52.1	6
HS2-000020BQR	Camden Council	Colocated with Noise install on park road village	Background	Monitoring did not commence until July 2018							30.0	36.0	38.0	43.0	41.0	38.0	5
HS2-000020BQS	Camden Council	Opposite Maria fidelis school on Pheonix Road	Background	Monitoring did not commence until August 2018							30.4	35.5	38.4	42.7	41.4	37.7	3
HS2-000020BQT	Camden Council	Drummond Street	Background	Monitoring did not commence until September 2018								36.1	38.1	50.0	39.3	37.8	3
HS2-000020BQU	Westminster City Council	Lamppost outside Edgware Road Station	Kerbside	Monitoring did not commence until October 2018									49.1	49.9	44.0	47.7	2

Notes:

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

Appendix E – Comparison of 2018 annual mean NO_2 diffusion tube results and the predicted NO_2 annual mean concentrations from the ES

Table 10 presents a comparison of the 2018 annual mean NO_2 diffusion tube results and the predicted 2012 and 2017 NO_2 annual mean concentrations from the ES for the scenario without and peak annual mean NO_2 with the Proposed Scheme in place.

Table 10 – Comparison of the 2018 annual mean NO_2 diffusion tube results and the predicted NO_2 annual mean concentrations from the ES

Site ID	Local authority	Site location	Site purpose	2018 annual mean NO_2 concentration, annualised and bias adjusted ($\mu g/m^3$)	Nearest ES assessed receptor ID	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Modelled peak annual mean NO_2 (with scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (m)	Difference monitored 2018 vs 2017 without scheme modelled ($\mu g/m^3$)	% difference 2017 without scheme modelled vs 2018 monitored	Difference monitored 2018 vs with-scheme modelled ($\mu g/m^3$)	% difference with scheme modelled vs 2018 monitored
HS2-000020BM5	Camden Council	Junction of St Chad's Street and Grays Inn Road	Predicted significant effect	50.4	1-204	86.4	75.6	76.1	5	-25.2	-33%	-25.7	-34%
HS2-000020BM6	Camden Council	Brunswick Square	Predicted significant effect	44.0	1-7	61.1	52.5	52.4	67	-8.5	-16%	-8.4	-16%
HS2-000020BM7	Camden Council	Chalton Street	Predicted significant effect	54.9	1-1	104.8	90.1	91.9	14	-35.2	-39%	-37.0	-40%
HS2-000020BM8	Camden Council	Junction of Euston Square and Grafton Place	Predicted significant effect	59.3	1-178	91.7	81	82.5	29	-21.7	-27%	-23.2	-28%
HS2-000020BM9	Camden Council	Junction of Endsleigh Gardens and Upper Woburn Place	Predicted significant effect	57.9	1-47	93.6	82.3	83.3	16	-24.4	-30%	-25.4	-30%
HS2-000020BMA	Camden Council	Junction of Euston Road and Gower Street	Predicted significant effect	58.7	1-170	99.3	80	82.1	0	-21.3	-27%	-23.4	-29%

Site ID	Local authority	Site location	Site purpose	2018 annual mean NO_2 concentration, annualised and bias adjusted ($\mu g/m^3$)	Nearest ES assessed receptor ID	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Modelled peak annual mean NO_2 (with scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (m)	Difference monitored 2018 vs 2017 without scheme modelled ($\mu g/m^3$)	% difference 2017 without scheme modelled vs 2018 monitored	Difference monitored 2018 vs with-scheme modelled ($\mu g/m^3$)	% difference with scheme modelled vs 2018 monitored
HS2-000020BMB	Camden Council	Whitfield Street	Predicted significant effect	39.0	1-287	63.6	53.4	53.8	11	-14.4	-27%	-14.8	-28%
HS2-000020BMC	Camden Council	Hampstead Road	Predicted significant effect	61.4	1-165	83.1	66.6	67.5	9	-5.2	-8%	-6.1	-9%
HS2-000020BMD	Westminster City Council	Lamp post on Park Crescent Road	Predicted significant effect	66.2	1-42	89.6	75.7	76.4	49	-9.5	-13%	-10.2	-13%
HS2-000020BME	Westminster City Council	Lamp post in between A501 and A4201	Predicted significant effect	85.5	1-279	86.1	72.8	73.4	17	12.7	17%	12.2	17%
HS2-000020BMF	Camden Council	Junction of Polygon Road and Ossulston Street	Predicted significant effect	29.7	1-79	50.4	43.4	43.7	0	-13.7	-32%	-14.0	-32%
HS2-000020BMH	Camden Council	Nash Street	Predicted significant effect	34.8	1-261	54.5	46.4	46.8	7	-11.6	-25%	-12.0	-26%
HS2-000020BMJ	Camden Council	Junction on Robert Street and Stanhope Street	Predicted significant effect	33.7	1-257	58.6	50.1	51.0	24	-16.4	-33%	-17.3	-34%
HS2-000020BMK	Camden Council	Junction of Plender Street and Bayham Street	Predicted significant effect	49.6	1-298	61.4	53.5	53.5	9	-3.9	-7%	-3.9	-7%
HS2-000020BML	Camden Council	Junction of Arlington Road and Mornington Crescent	Predicted significant effect	34.0	1-9	52	45.8	44.3	2	-11.8	-26%	-10.3	-23%
HS2-000020BMM	Camden Council	Junction of Bayham Street and Pratt Street	Predicted significant effect	57.4	2-72	69.4	57.2	57.0	6	0.2	0%	0.4	1%
HS2-000020BMN	Camden Council	Junction of Delancey Street and Albert Street	Predicted significant effect	39.5	1-246	55.8	46.7	48.7	4	-7.2	-15%	-9.2	-19%
HS2-000020BMQ	Camden Council	Junction of Parkway and Delancey Street	Predicted significant effect	53.0	2-103	70.5	58.4	56.9	22	-5.4	-9%	-3.9	-7%
HS2-000020BMR	Camden Council	Junction of Oval Road and Jamestown Road	Predicted significant effect	35.7	2-98	45.5	39.1	39.3	7	-3.4	-9%	-3.6	-9%

Site ID	Local authority	Site location	Site purpose	2018 annual mean NO_2 concentration, annualised and bias adjusted ($\mu g/m^3$)	Nearest ES assessed receptor ID	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Modelled peak annual mean NO_2 (with scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (m)	Difference monitored 2018 vs 2017 without scheme modelled ($\mu g/m^3$)	% difference 2017 without scheme modelled vs 2018 monitored	Difference monitored 2018 vs with-scheme modelled ($\mu g/m^3$)	% difference with scheme modelled vs 2018 monitored
HS2-000020BMS	Camden Council	Junction of Chalk Farm Road and Castlehaven Road	Predicted significant effect	54.6	2-8	64.3	53.2	53.7	5	1.4	3%	0.9	2%
HS2-000020BMT	Camden Council	Junction of Camden Road and Camden Street	Predicted significant effect	48.7	2-38	79.3	63.4	62.3	21	-14.7	-23%	-13.6	-22%
HS2-000020BMU	Camden Council	Junction of Southampton Road and Fleet Road	Predicted significant effect	41.1	3-153	52.4	46.3	46.3	14	-5.2	-11%	-5.2	-11%
HS2-000020BMV	Camden Council	Primrose Hill Road	Predicted significant effect	38.3	3-213	55.2	46.7	45.1	32	-8.4	-18%	-6.8	-15%
HS2-000020BMW	Camden Council	Junction of Finchley Road and Hilgrove Road	Predicted significant effect	52.9	3-60	64.9	53.6	53.8	8	-0.7	-1%	-0.9	-2%
HS2-000020BMX	Westminster City Council	Sign post by roundabout on A5205	Predicted significant effect	49.5	1-141	65.1	55.7	56.1	24	-6.2	-11%	-6.6	-12%
HS2-000020BMY	Westminster City Council	Lamp post between Blomfield Road and Edgware Road	Predicted significant effect	55.9	4-65	64.2	54.1	53.9	13	1.8	3%	2.0	4%
HS2-000020BMZ	Camden Council	Junction of Finchley Road and Hendon Way	Predicted significant effect	81.9	3-96	70.4	56.4	56.4	8	25.5	45%	25.5	45%
HS2-000020BN0	Westminster City Council	Lamp post on Ladbroke Grove	Predicted significant effect	48.0	4-225	77.1	66.2	66.3	14	-18.2	-27%	-18.3	-28%
HS2-000020BN1	Kensington and Chelsea Council	Sign post on St Ann's Villas	Predicted significant effect	44.5	4-193	62.3	53.2	53.3	4	-8.7	-16%	-8.8	-17%
HS2-000020BN2	Hammersmith and Fulham Council	Lamp post on Du Cane Road	Predicted significant effect	55.1	4-204	72.1	61.1	61.1	12	-6.0	-10%	-6.0	-10%
HS2-000020BN3	Brent Council	Sign post on High Street Harlesden	Predicted significant effect	56.1	4-209	68.7	58.5	58.6	47	-2.4	-4%	-2.5	-4%
HS2-000020BN4	Hammersmith and Fulham Council	End of cycle lane sign on Old Oak Road	Predicted significant effect	51.9	4-155	88.7	76	76.1	18	-24.1	-32%	-24.2	-32%

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HS2-000020BN5	Ealing Council	Sign post on Victoria Road	Predicted significant effect	51.9	4-12	64.6	52.6	56.0	3	-0.7	-1%	-4.1	-7%
HS2-000020BN7	Ealing Council	The Approach street sign	Predicted significant effect	56.0	4-152	83.3	69.6	69.6	20	-13.6	-20%	-13.6	-19%
HS2-000020BNA	Camden Council	Junction of Regent's Park Road and Rothwell Street	Predicted significant effect	36.5	3-193	47.4	39.4	38.2	2	-2.9	-7%	-1.7	-4%
HS2-000020BNB	Camden Council	Junction of Gloucester Gate Bridge and Park Village East	Predicted significant effect	43.5	1-284	53.4	45.5	43.0	19	-2.0	-4%	0.5	1%
HS2-000020BNC	Camden Council	Junction of Outer Circle and Gloucester Gate	Predicted significant effect	30.2	1-70	49.4	42.7	43.1	22	-12.5	-29%	-12.9	-30%
HS2-000020BND	Westminster City Council	Outer Circle Regent's Park	Predicted significant effect	35.0	1-281	61.1	52	52.4	15	-17.0	-33%	-17.4	-33%
HS2-000020BNF	Kensington and Chelsea Council	Unsuitable for long vehicles sign on St Ann's Villas	Predicted significant effect	46.8	4-182	59.5	50.8	50.9	1	-4.0	-8%	-4.1	-8%
HS2-000020BNG	Brent Council	Lamp post on Donnington Road	Predicted significant effect	39.6	4-120	53.7	46	46.1	14	-6.4	-14%	-6.5	-14%
HS2-000020BNH	Camden Council	Junction of Parkway and Albert Street	Predicted significant effect	38.2	2-85	61.6	51.3	51.0	18	-13.1	-26%	-12.8	-25%
HS2-000020BNJ	Westminster City Council	Light post on Park Road	Predicted significant effect	55.0	1-242	69.7	57.4	58.2	10	-2.4	-4%	-3.2	-5%
HS2-000020BNK	Westminster City Council	London Underground sign outside Edgware Rd Station	Predicted significant effect	74.2	1-25	100.3	86.8	86.6	2	-12.6	-15%	-12.4	-14%
HS2-000020BNL	Westminster City Council	Lamp post on Penfold Street	Background not affected by scheme	38.5	No assessed receptor location nearby								

Site ID	Local authority	Site location	Site purpose	2018 annual mean NO_2 concentration, annualised and bias adjusted ($\mu g/m^3$)	Nearest ES assessed receptor ID	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Modelled peak annual mean NO_2 (with scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (m)	Difference monitored 2018 vs 2017 without scheme modelled ($\mu g/m^3$)	% difference 2017 without scheme modelled vs 2018 monitored	Difference monitored 2018 vs with-scheme modelled ($\mu g/m^3$)	% difference with scheme modelled vs 2018 monitored
HS2-000020BNN	Camden Council	Lincoln's Inn Fields	Background not affected by scheme	35.6	No assessed receptor location nearby								
HS2-000020BNQ	Camden Council	Camley Street	Background not affected by scheme	37.4	No assessed receptor location nearby								
HS2-000020BNR	Hammersmith and Fulham Council	Lamp posts in Shepherd's Bush Common	Background not affected by scheme	38.9	No assessed receptor location nearby								
HS2-000020BNS	Brent Council	Lamp post on Tower Road by Willesden Jewish Cemetery	Background not affected by scheme	27.4	No assessed receptor location nearby								
HS2-000020BNT	Hillingdon Council	Lamp post on Pembroke Road	Background not affected by scheme	25.3	No assessed receptor location nearby								
HS2-000020BNU	Hillingdon Council	Cowley Road sign post at junction with Hillingdon Road	Roadside not affected by scheme	45.8	No assessed receptor location nearby								
HS2-000020BNV	Hillingdon Council	High Street sign post at junction with Pembroke Road	Roadside not affected by scheme	43.0	No assessed receptor location nearby								
HS2-000020BNW	Hillingdon Council	Signpost on A4020 Uxbridge Road at junction with Long Lane	Roadside not affected by scheme	46.4	No assessed receptor location nearby								
HS2-000020BNX	Hammersmith and Fulham Council	Signpost on A402 Goldhawk Road	Roadside not affected by scheme	41.8	No assessed receptor location nearby								
HS2-000020BNY	Camden Council	Junction of Mill Lane and Hillfield Road	Roadside not affected by scheme	41.8	No assessed receptor location nearby								
HS2-000020BNZ	Camden Council	Mansfield Road	Roadside not affected by scheme	35.8	No assessed receptor location nearby								
HS2-000020BP0	Camden Council	Junction of Camden Road and Torriano Avenue	Roadside not affected by scheme	61.1	No assessed receptor location nearby								

Site ID	Local authority	Site location	Site purpose	2018 annual mean NO_2 concentration, annualised and bias adjusted ($\mu g/m^3$)	Nearest ES assessed receptor ID	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Modelled peak annual mean NO_2 (with scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (m)	Difference monitored 2018 vs 2017 without scheme modelled ($\mu g/m^3$)	% difference 2017 without scheme modelled vs 2018 monitored	Difference monitored 2018 vs with-scheme modelled ($\mu g/m^3$)	% difference with scheme modelled vs 2018 monitored
HS2-000020BP1	Westminster City Council	Lamp post on Brook Street	Roadside not affected by scheme	63.3	No assessed receptor location nearby								
HS2-000020BP2	Camden Council	Junction of Grays Inn Road and Holborn	Roadside not affected by scheme	48.7	No assessed receptor location nearby								
HS2-000020BP3	Westminster City Council	Triplicate site next to the Marylebone Road kerbside automatic monitoring stations	Colocation kerbside	69.9	1-293	92	77.3	77.7	33	-7.4	-10%	-7.8	-10%
HS2-000020BP4	Camden Council	Triplicate site on Finchley Road next to Swiss Cottage kerbside automatic monitoring station	Colocation kerbside	60.6	3-64	76.8	60.2	60.0	9	0.4	1%	0.6	1%
HS2-000020BP5	Camden Council	Triplicate site next to the Euston Road roadside automatic monitoring stations	Colocation roadside	80.8	1-1	104.8	90.1	91.9	32	-9.3	-10%	-11.1	-12%
HS2-000020BP6	Ealing Council	Triplicate site next to the Ealing, Western Avenue Acton roadside automatic monitoring station	Colocation roadside	56.2	5-35	74.3	63.4	63.6	14	-7.2	-11%	-7.4	-12%
HS2-000020BP7	Ealing Council	Triplicate site next to the Ealing, Hangar Lane Gyratory roadside automatic monitoring station	Colocation roadside	70.2	5-49	89	76	76.0	102	-5.8	-8%	-5.8	-8%
HS2-000020BP8	Hillingdon Council	Triplicate site at South Ruislip roadside automatic monitoring station	Colocation roadside	37.8	No assessed receptor location nearby								
HS2-000020BP9	Camden Council	Triplicate site in Russell Square next to Bloomsbury urban background automatic monitoring station	Colocation background	35.7	1-276	66.1	58.6	57.8	90	-22.9	-39%	-22.1	-38%

Site ID	Local authority	Site location	Site purpose	2018 annual mean NO_2 concentration, annualised and bias adjusted ($\mu g/m^3$)	Nearest ES assessed receptor ID	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Modelled peak annual mean NO_2 (with scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (m)	Difference monitored 2018 vs 2017 without scheme modelled ($\mu g/m^3$)	% difference 2017 without scheme modelled vs 2018 monitored	Difference monitored 2018 vs with-scheme modelled ($\mu g/m^3$)	% difference with scheme modelled vs 2018 monitored
HS2-000020BPA	Kensington and Chelsea Council	Triplicate site at Sion Manning School, St. Charles' square, next to the North Kensington urban background automatic monitoring stations	Colocation background	28.4	4-121	59.6	50.8	50.8	84	-22.4	-44%	-22.4	-44%
HS2-000020BPB	Camden Council	Camden High Street	Predicted significant effect	69.1	2-63	62.1	50.7	50.6	68	18.4	36%	18.6	37%
HS2-000020BPC	Camden Council	Castlehaven Road	Predicted significant effect	31.5	2-93	48.8	42.3	42.7	29	-10.8	-26%	-11.2	-26%
HS2-000020BPD	Camden Council	Prince of Wales Road	Predicted significant effect	33.8	No assessed receptor location nearby								
HS2-000020BPE	Camden Council	Haverstock Hill	Predicted significant effect	43.0	3-41	50.5	42.7	42.7	25	0.3	1%	0.3	1%
HS2-000020BPF	Camden Council	Junction of Primrose Gardens and England's Lane	Predicted significant effect	31.9	3-130	46.3	40.7	40.6	8	-8.8	-22%	-8.7	-21%
HS2-000020BPG	Westminster City Council	Lamp post on St John's Wood Street	Predicted significant effect	43.4	1-48	60.7	53	53.1	66	-9.6	-18%	-9.7	-18%
HS2-000020BPH	Westminster City Council	Lamp post St John's Wood Terrace	Predicted significant effect	42.7	1-62	61.5	51.5	51.8	8	-8.8	-17%	-9.1	-18%
HS2-000020BPK	Hillingdon Council	Lamp post in crescent off Swakeleys Road	Predicted significant effect	35.8	6-40	48.9	42.7	43.3	23	-6.9	-16%	-7.5	-17%
HS2-000020BPL	Hillingdon Council	Warren Road sign post on corner of Swakeleys Road and Warren Road	Predicted significant effect	41.3	6-31	68.1	59.5	60.6	7	-18.2	-31%	-19.3	-32%
HS2-000020BPM	Brent Council	Lamp post along Gorefield Place near block of flats	Background not affected by scheme	27.8	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Site ID	Local authority	Site location	Site purpose	2018 annual mean NO_2 concentration, annualised and bias adjusted ($\mu g/m^3$)	Nearest ES assessed receptor ID	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Modelled peak annual mean NO_2 (with scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (m)	Difference monitored 2018 vs 2017 without scheme modelled ($\mu g/m^3$)	% difference 2017 without scheme modelled vs 2018 monitored	Difference monitored 2018 vs with-scheme modelled ($\mu g/m^3$)	% difference with scheme modelled vs 2018 monitored
HS2-000020BPN	Hillingdon Council	Lamp post on B467	Predicted significant effect	31.0	6-52	44.8	38.7	38.3	42	-7.7	-20%	-7.3	-19%
HS2-000020BPO	Kensington and Chelsea Council	Lamp post off Silchester Road	Predicted significant effect	38.7	4-104	70.2	60.2	60.2	19	-21.5	-36%	-21.5	-36%
HS2-000020BPP	Hammersmith and Fulham Council	Sign post on A219 Scrubs Lane, South of Harrow Road	Predicted significant effect	46.3	4-209	68.7	58.5	58.6	57	-12.2	-21%	-12.3	-21%
HS2-000020BPQ	Kensington and Chelsea Council	Lamp post along Ladbroke Grove, near shops and bus stop at Trevorton Road junction	Predicted significant effect	38.3	4-217	61.5	51.7	51.9	9	-13.4	-26%	-13.6	-26%
HS2-000020BPR	Kensington and Chelsea Council	Lamp post at junction of Crowthorne Road and Bramley Road	Predicted significant effect	43.7	4-173	75.2	63.8	63.9	33	-20.1	-32%	-20.2	-32%
HS2-000020BPS	Kensington and Chelsea Council	Lamp post by fence on B450 Ladbroke Grove, south of A404 Harrow Road	Predicted significant effect	45.6	4-223	50.5	43.1	43.1	13	2.5	6%	2.5	6%
HS2-000020BPT	Hammersmith and Fulham Council	Controlled Zone/Zone Ends road sign on A219 Scrubs Lane, north of Hythe Road	Predicted significant effect	47.6	4-206	64.8	55.3	55.4	59	-7.7	-14%	-7.8	-14%
HS2-000020BPU	Camden Council	Junction of Gower Street and Grafton Way	Predicted significant effect	50.5	1-4	76.1	62.1	64.1	4	-11.6	-19%	-13.6	-21%
HS2-000020BPV	Camden Council	Phoenix Road	Predicted significant effect	30.2	1-269	57.4	51.3	51.7	51	-21.1	-41%	-21.5	-42%
HS2-000020BPW	Camden Council	Junction of Delancey Street and Arlington Road	Predicted significant effect	45.0	1-58	56.1	46.9	46.7	27	-1.9	-4%	-1.7	-4%
HS2-000020BPX	Camden Council	Netley Street	Predicted significant effect	35.9	1-292	83.2	66.6	67.5	87	-30.7	-46%	-31.6	-47%

Site ID	Local authority	Site location	Site purpose	2018 annual mean NO_2 concentration, annualised and bias adjusted ($\mu g/m^3$)	Nearest ES assessed receptor ID	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Modelled peak annual mean NO_2 (with scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (m)	Difference monitored 2018 vs 2017 without scheme modelled ($\mu g/m^3$)	% difference 2017 without scheme modelled vs 2018 monitored	Difference monitored 2018 vs with-scheme modelled ($\mu g/m^3$)	% difference with scheme modelled vs 2018 monitored
HS2-000020BPY	Camden Council	Stanhope Street	Predicted significant effect	32.2	1-254	51.5	43.5	43.6	97	-11.3	-26%	-11.4	-26%
HS2-000020BPZ	Camden Council	Albany Street	Predicted significant effect	40.4	1-283	54.1	46.3	45.7	32	-5.9	-13%	-5.3	-12%
HS2-000020BQ0	Camden Council	Werrington Street	Predicted significant effect	32.1	1-191	56.7	50.1	50.9	82	-18.0	-36%	-18.8	-37%
HS2-000020BQ1	Camden Council	Polygon Road	Predicted significant effect	34.0	1-208	50.2	43.1	43.2	57	-9.1	-21%	-9.2	-21%
HS2-000020BQ2	Camden Council	Alexandra Place	Predicted significant effect	28.7	No assessed receptor location nearby								
HS2-000020BQ3	Camden Council	Harrington Square	Predicted significant effect	44.6	1-134	61.5	52.2	53.5	38	-7.6	-15%	-8.9	-17%
HS2-000020BQ4	Camden Council	Junction of North Gower Street and Starcross Street	Predicted significant effect	37.7	1-166	65.4	54.4	54.2	39	-16.7	-31%	-16.5	-30%
HS2-000020BQ5	Camden Council	Adelaide Road	Predicted significant effect	39.9	3-211	46.2	39.3	39.5	109	0.6	2%	0.4	1%
HS2-000020BQ6	Camden Council	Mornington Terrace	Predicted significant effect	33.2	1-246	55.8	46.7	48.7	100	-13.5	-29%	-15.5	-32%
HS2-000020BQ7	Camden Council	Arlington Road	Predicted significant effect	32.1	1-198	51.9	44.1	43.2	23	-12.0	-27%	-11.1	-26%
HS2-000020BQ8	Camden Council	Clarkson Row	Predicted significant effect	32.6	1-253	50.9	43.8	43.3	56	-11.2	-26%	-10.7	-25%
HS2-000020BQ9	Camden Council	Park Village East	Predicted significant effect	30.8	No assessed receptor location nearby								
HS2-000020BQA	Camden Council	Eversholt Street	Predicted significant effect	49.0	1-192	57.7	51.2	52.0	13	-2.2	-4%	-3.0	-6%

Site ID	Local authority	Site location	Site purpose	2018 annual mean NO_2 concentration, annualised and bias adjusted ($\mu g/m^3$)	Nearest ES assessed receptor ID	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Modelled peak annual mean NO_2 (with scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (m)	Difference monitored 2018 vs 2017 without scheme modelled ($\mu g/m^3$)	% difference 2017 without scheme modelled vs 2018 monitored	Difference monitored 2018 vs with-scheme modelled ($\mu g/m^3$)	% difference with scheme modelled vs 2018 monitored
HS2-000020BQB	Camden Council	Junction of Harrington Street and Varndell Street	Predicted significant effect	35.0	1-322	63.6	50	51.5	5	-15.0	-30%	-16.5	-32%
HS2-000020BQC	Camden Council	Junction of Robert Street and Hampstead Road	Predicted significant effect	41.3	1-71	63.1	53.5	54.8	32	-12.2	-23%	-13.5	-25%
HS2-000020BQD	Camden Council	Drummond Crescent	Predicted significant effect	39.5	1-186	66.7	56.8	57.8	58	-17.3	-30%	-18.3	-32%
HS2-000020BQE	Hammersmith and Fulham Council	Lamp post next to No 11 Wulfstan Street	Predicted significant effect	32.6	4-262	48.1	40.8	40.7	8	-8.2	-20%	-8.1	-20%
HS2-000020BQF	Ealing Council	Conway Drive sign post	Predicted significant effect	58.5	4-55	63.7	55.2	55.3	36	3.3	6%	3.2	6%
HS2-000020BQG	Ealing Council	Lamp post outside No 1. Wells House Road on Old Oak Common Lane	Predicted significant effect	58.0	4-143	52.6	45.2	45.3	6	12.8	28%	12.7	28%
HS2-000020BQH	Hillingdon Council	Lamp post on High Road Ickenham	Predicted significant effect	41.6	6-73	45.6	39.0	38.8	59	2.6	7%	2.8	7%
HS2-000020BQJ	Camden Council	Grafton Way	Predicted significant effect	51.2	1-4	76.1	62.1	64.1	109	-10.9	-18%	-12.9	-20%
HS2-000020BQK	Camden Council	Junction of Drummond Street and Cobourg Street	Predicted significant effect	37.4	1-169	64	52.6	51.6	7	-15.2	-29%	-14.2	-27%
HS2-000020BQL	Camden Council	Delancey Street	Predicted significant effect	51.0	2-87	62.5	51.4	50.0	19	-0.4	-1%	1.0	2%
HS2-000020BQN	Hillingdon Council	Lamp post on Park Road	Predicted significant effect	50.1	6-62	64.5	54.5	53.8	21	-4.4	-8%	-3.7	-7%
HS2-000020BQP	Hillingdon Council	Sign post on Long Lane	Predicted significant effect	41.8	No assessed receptor location nearby								

Site ID	Local authority	Site location	Site purpose	2018 annual mean NO_2 concentration, annualised and bias adjusted ($\mu g/m^3$)	Nearest ES assessed receptor ID	Modelled annual mean NO_2 2012 ($\mu g/m^3$)	Modelled annual mean NO_2 2017 (without scheme, $\mu g/m^3$)	Modelled peak annual mean NO_2 (with scheme, $\mu g/m^3$)	Distance of diffusion tube to nearest ES assessed receptor (m)	Difference monitored 2018 vs 2017 without scheme modelled ($\mu g/m^3$)	% difference 2017 without scheme modelled vs 2018 monitored	Difference monitored 2018 vs with-scheme modelled ($\mu g/m^3$)	% difference with scheme modelled vs 2018 monitored
HS2-000020BQQ	Kensington and Chelsea Council	Lamp post along Ladbroke Grove, near shops and bus stop at Trevorton Road junction	Predicted significant effect	48.2	4-217	61.5	51.7	51.9	16	-3.5	-7%	-3.7	-7%
HS2-000020BQR	Camden Council	Colocated with Noise install on park road village	Predicted significant effect	34.8	1-284	53.4	45.5	43.0	28	-10.7	-24%	-8.2	-19%
HS2-000020BQS	Camden Council	Opposite Maria fidelis school on Pheonix Road	Predicted significant effect	33.1	1-269	57.4	51.3	51.7	22	-18.2	-35%	-18.6	-36%
HS2-000020BQT	Camden Council	Drummond Street	Predicted significant effect	38.8	1-169	64	52.6	51.6	13	-13.8	-26%	-12.8	-25%
HS2-000020BQU	Westminster City Council	Lamppost outside Edgware Road Station	Predicted significant effect	61.9	1-25	100.3	86.8	86.6	2	-24.9	-29%	-24.7	-28%

Appendix F – Comparison of the 2016, 2017 and 2018 annual mean NO_2 diffusion tube monitoring results

Table 11 presents a comparison of the annual mean NO_2 diffusion tube results to date.

Table 11 – Comparison of the 2016, 2017 and 2018 annual mean NO_2 diffusion tube monitoring results

Site ID	Local Authority	Site Location	Site Location type	Annual mean NO_2 diffusion tube monitoring results ($\mu g/m^3$)		
				2016	2017	2018
HS2-000020BM5	Camden Council	Junction of St Chad's Street and Grays Inn Road	Roadside	**59.8**	**50.4**	**50.4**
HS2-000020BM6	Camden Council	Brunswick Square	Roadside	**50.4**	**47.4**	**44**
HS2-000020BM7	Camden Council	Chalton Street	Roadside	**66.8**	**58.4**	**54.9**
HS2-000020BM8	Camden Council	Junction of Euston Square and Grafton Place	Roadside	**66.9**	**58**	**59.3**
HS2-000020BM9	Camden Council	Junction of Endsleigh Gardens and Upper Woburn Place	Roadside	**59.5**	**52.4**	**57.9**
HS2-000020BMA	Camden Council	Junction of Euston Road and Gower Street	Roadside	**70.1**	**60.3**	**58.7**
HS2-000020BMB	Camden Council	Whitfield Street	Background	**46.7**	**45**	39
HS2-000020BMC	Camden Council	Hampstead Road	Roadside	**68**	**59.1**	**61.4**
HS2-000020BMD	Westminster City Council	Lamp post on Park Crescent Road	Roadside	**74.2**	**67.4**	**66.2**
HS2-000020BME	Westminster City Council	Lamp post in between A501 and A4201	Roadside	**96.7**	**81.6**	**85.5**
HS2-000020BMF	Camden Council	Junction of Polygon Road and Ossulston Street	Background	**42.4**	35.8	29.7
HS2-000020BMH	Camden Council	Nash Street	Background	**42.5**	39.5	34.8
HS2-000020BMJ	Camden Council	Junction on Robert Street and Stanhope Street	Background	**44.1**	39.1	33.7
HS2-000020BMK	Camden Council	Junction of Plender Street and Bayham Street	Roadside	**60.5**	**51.4**	**49.6**
HS2-000020BML	Camden Council	Junction of Arlington Road and Mornington Crescent	Background	**44.9**	38.2	34
HS2-000020BMM	Camden Council	Junction of Bayham Street and Pratt Street	Roadside	**71.4**	**67.3**	**57.4**
HS2-000020BMN	Camden Council	Junction of Delancey Street and Albert Street	Roadside	**45.6**	**41.9**	39.5
HS2-000020BMQ	Camden Council	Junction of Parkway and Delancey Street	Roadside	**61**	**48.6**	**53**
HS2-000020BMR	Camden Council	Junction of Oval Road and Jamestown Road	Background	**43.2**	**40.1**	35.7
HS2-000020BMS	Camden Council	Junction of Chalk Farm Road and Castlehaven Road	Roadside	**61**	**50.6**	**54.6**
HS2-000020BMT	Camden Council	Junction of Camden Road and Camden Street	Kerbside	**88.1**	**62.4**	**48.7**
HS2-000020BMU	Camden Council	Junction of Southampton Road and Fleet Road	Roadside	**45**	37.3	**41.1**
HS2-000020BMV	Camden Council	Primrose Hill Road	Roadside	**43.4**	39.3	38.3
HS2-000020BMW	Camden Council	Junction of Finchley Road and Hilgrove Road	Roadside	**63.7**	**55.5**	**52.9**
HS2-000020BMX	Westminster City Council	Sign post by roundabout on A5205	Roadside	**59.3**	**51.7**	**49.5**
HS2-000020BMY	Westminster City Council	Lamp post between Blomfield Road and Edgware Road	Roadside	**64.4**	**57.4**	**55.9**
HS2-000020BMZ	Camden Council	Junction of Finchley Road and Hendon Way	Roadside	**93.4**	**83.9**	**81.9**
HS2-000020BN0	Westminster City Council	Lamp post on Ladbroke Grove	Roadside	**50.9**	**45.8**	**48**

Site ID	Local Authority	Site Location	Site Location type	Annual mean NO_2 diffusion tube monitoring results (µg/m^3)		
				2016	2017	2018
HS2-000020BN1	Kensington and Chelsea Council	Sign post on St Ann's Villas	Roadside	**53.9**	**43.1**	**44.5**
HS2-000020BN2	Hammersmith and Fulham Council	Lamp post on Du Cane Road	Roadside	**61.2**	**57.8**	**55.1**
HS2-000020BN3	Brent Council	Sign post on High Street Harlesden	Roadside	**65.7**	**52.5**	**56.1**
HS2-000020BN4	Hammersmith and Fulham Council	End of cycle lane sign on Old Oak Road	Roadside	**68.7**	**52.6**	**51.9**
HS2-000020BN5	Ealing Council	Sign post on Victoria Road	Roadside	**58.5**	**50.5**	**51.9**
HS2-000020BN7	Ealing Council	The Approach street sign	Roadside	**67.6**	**61**	**56**
HS2-000020BNA	Camden Council	Junction of Regent's Park Road and Rothwell Street	Roadside	**42.3**	38.5	36.5
HS2-000020BNB	Camden Council	Junction of Gloucester Gate Bridge and Park Village East	Roadside	**50.2**	**42.4**	**43.5**
HS2-000020BNC	Camden Council	Junction of Outer Circle and Gloucester Gate	Background	32.4	28.8	30.2
HS2-000020BND	Westminster City Council	Outer Circle Regent's Park	Kerbside	**42.7**	**40.1**	35
HS2-000020BNF	Kensington and Chelsea Council	Unsuitable for long vehicles sign on St Ann's Villas	Roadside	**50.6**	**41.5**	**46.8**
HS2-000020BNG	Brent Council	Lamp post on Donnington Road	Roadside	**45.5**	38.6	39.6
HS2-000020BNH	Camden Council	Junction of Parkway and Albert Street	Kerbside	**49.6**	39.8	38.2
HS2-000020BNJ	Westminster City Council	Light post on Park Road	Roadside	**66.3**	**54.1**	**55**
HS2-000020BNK	Westminster City Council	London Underground sign outside Edgware Rd Station	Roadside	**73.2**	**70.4**	**74.2**
HS2-000020BNL	Westminster City Council	Lamp post on Penfold Street	Background	**46.4**	**43.8**	38.5
HS2-000020BNN	Camden Council	Lincoln's Inn Fields	Background	38.6	36.9	35.6
HS2-000020BNQ	Camden Council	Camley Street	Background	**47.5**	**41.1**	37.4
HS2-000020BNR	Hammersmith and Fulham Council	Lamp posts in Shepherd's Bush Common	Background	**49.5**	39.6	38.9
HS2-000020BNS	Brent Council	Lamp post on Tower Road by Willesden Jewish Cemetery	Background	34.1	30.6	27.4
HS2-000020BNT	Hillingdon Council	Lamp post on Pembroke Road	Background	-	30.6	25.3
HS2-000020BNU	Hillingdon Council	Cowley Road sign post at junction with Hillingdon Road	Roadside	-	**47**	**45.8**
HS2-000020BNV	Hillingdon Council	High Street sign post at junction with Pembroke Road	Roadside	-	37	**43**
HS2-000020BNW	Hillingdon Council	Signpost on A4020 Uxbridge Road at junction with Long Lane	Roadside	-	**43.3**	**46.4**
HS2-000020BNX	Hammersmith and Fulham Council	Signpost on A402 Goldhawk Road	Roadside	**48.5**	38.6	**41.8**
HS2-000020BNY	Camden Council	Junction of Mill Lane and Hillfield Road	Roadside	**43.8**	**42.7**	**41.8**
HS2-000020BNZ	Camden Council	Mansfield Road	Roadside	36.4	37.4	35.8
HS2-000020BP0	Camden Council	Junction of Camden Road and Torriano Avenue	Roadside	**60.6**	**55**	**61.1**
HS2-000020BP1	Westminster City Council	Lamp post on Brook Street	Roadside	**61.8**	**58.7**	**63.3**
HS2-000020BP2	Camden Council	Junction of Grays Inn Road and Holborn	Roadside	**52**	**46.8**	**48.7**
HS2-000020BP3	Westminster City Council	Triplicate site next to the Marylebone Road kerbside automatic monitoring stations	Kerbside	**86.8**	**74.3**	**69.9**
HS2-000020BP4	Camden Council	Triplicate site on Finchley Road next to Swiss Cottage kerbside automatic monitoring station	Kerbside	**66.6**	**62.1**	**60.6**
HS2-000020BP5	Camden Council	Triplicate site next to the Euston Road roadside automatic monitoring stations	Roadside	**86.7**	**76.2**	**80.8**
HS2-000020BP6	Ealing Council	Triplicate site next to the Ealing, Western Avenue Acton roadside automatic monitoring station	Roadside	**64.7**	**57.3**	**56.2**
HS2-000020BP7	Ealing Council	Triplicate site next to the Ealing, Hangar Lane Gyratory roadside automatic monitoring station	Roadside	**72.3**	**71.9**	**70.2**
HS2-000020BP8	Hillingdon Council	Triplicate site at South Ruislip roadside automatic monitoring station	Roadside			37.8

Site ID	Local Authority	Site Location	Site Location type	Annual mean NO_2 diffusion tube monitoring results (µg/m^3)		
				2016	2017	2018
HS2-000020BP9	Camden Council	Triplicate site in Russell Square next to Bloomsbury urban background automatic monitoring station	Background	39.2	38.7	35.7
HS2-000020BPA	Kensington and Chelsea Council	Triplicate site at Sion Manning School, St. Charles' square, next to the North Kensington urban background automatic monitoring stations	Background	36.2	30.7	28.4
HS2-000020BPB	Camden Council	Camden High Street	Roadside	**74.6**	**66**	**69.1**
HS2-000020BPC	Camden Council	Castlehaven Road	Background	**41**	36.6	31.5
HS2-000020BPD	Camden Council	Prince of Wales Road	Roadside	36.8	34.4	33.8
HS2-000020BPE	Camden Council	Haverstock Hill	Roadside	**48.3**	**44.3**	**43**
HS2-000020BPF	Camden Council	Junction of Primrose Gardens and England's Lane	Background	**40.9**	37.2	31.9
HS2-000020BPG	Westminster City Council	Lamp post on St John's Wood Street	Roadside	**49.8**	**43.2**	**43.4**
HS2-000020BPH	Westminster City Council	Lamp post St John's Wood Terrace	Roadside	**49**	**45.7**	**42.7**
HS2-000020BPK	Hillingdon Council	Lamp post in crescent off Swakeleys Road	Roadside	-	-	35.8
HS2-000020BPL	Hillingdon Council	Warren Road sign post on corner of Swakeleys Road and Warren Road	Roadside	-	-	**41.3**
HS2-000020BPM	Brent Council	Lamp post along Gorefield Place near block of flats	Background	38	32.1	27.8
HS2-000020BPN	Hillingdon Council	Lamp post on B467	Roadside			31
HS2-000020BPO	Kensington and Chelsea Council	Lamp post off Silchester Road	Roadside	**45.3**	38.5	38.7
HS2-000020BPP	Hammersmith and Fulham Council	Sign post on A219 Scrubs Lane, South of Harrow Road	Roadside	**54.4**	**46.3**	**46.3**
HS2-000020BPQ	Kensington and Chelsea Council	Lamp post along Ladbroke Grove, near shops and bus stop at Trevorton Road junction	Roadside	**45.2**	38.4	38.3
HS2-000020BPR	Kensington and Chelsea Council	Lamp post at junction of Crowthorne Road and Bramley Road	Roadside	**49.2**	**43**	**43.7**
HS2-000020BPS	Kensington and Chelsea Council	Lamp post by fence on B450 Ladbroke Grove, south of A404 Harrow Road	Roadside	**54.2**	**44.5**	**45.6**
HS2-000020BPT	Hammersmith and Fulham Council	Controlled Zone/Zone Ends road sign on A219 Scrubs Lane, north of Hythe Road	Roadside	**57.3**	**45.5**	**47.6**
HS2-000020BPU	Camden Council	Junction of Gower Street and Grafton Way	Roadside	**59.7**	**51.5**	**50.5**
HS2-000020BPV	Camden Council	Phoenix Road	Background	**40.1**	36.4	30.2
HS2-000020BPW	Camden Council	Junction of Delancey Street and Arlington Road	Roadside	**53.4**	**42.9**	**45**
HS2-000020BPX	Camden Council	Netley Street	Background	**41.5**	36	35.9
HS2-000020BPY	Camden Council	Stanhope Street	Background	38.3	32.4	32.2
HS2-000020BPZ	Camden Council	Albany Street	Roadside	**47.4**	39.5	**40.4**
HS2-000020BQ0	Camden Council	Werrington Street	Background	**41.8**	33.9	32.1
HS2-000020BQ1	Camden Council	Polygon Road	Background	39.7	35	34
HS2-000020BQ2	Camden Council	Alexandra Place	Background	34.8	31.6	28.7
HS2-000020BQ3	Camden Council	Harrington Square	Kerbside	**53.8**	**45.5**	**44.6**
HS2-000020BQ4	Camden Council	Junction of North Gower Street and Starcross Street	Background	**43.8**	39.2	37.7
HS2-000020BQ5	Camden Council	Adelaide Road	Roadside	**54.6**	**43**	39.9
HS2-000020BQ6	Camden Council	Mornington Terrace	Background	**47.8**	35.2	33.2
HS2-000020BQ7	Camden Council	Arlington Road	Background	**52.4**	34.9	32.1
HS2-000020BQ8	Camden Council	Clarkson Row	Background		35.3	32.6
HS2-000020BQ9	Camden Council	Park Village East	Background	**49**	32.7	30.8
HS2-000020BQA	Camden Council	Eversholt Street	Kerbside	**71.3**	**53.6**	**49**
HS2-000020BQB	Camden Council	Junction of Harrington Street and Varndell Street	Background	**54.1**	33.4	35
HS2-000020BQC	Camden Council	Junction of Robert Street and Hampstead Road	Kerbside	**59.3**	39.7	**41.3**
HS2-000020BQD	Camden Council	Drummond Crescent	Background	**58.7**	**41.2**	39.5

Site ID	Local Authority	Site Location	Site Location type	Annual mean NO_2 diffusion tube monitoring results ($\mu g/m^3$)		
				2016	2017	2018
HS2-000020BQE	Hammersmith and Fulham Council	Lamp post next to No 11 Wulfstan Street	Background	**52.7**	36.8	32.6
HS2-000020BQF	Ealing Council	Conway Drive sign post	Roadside	**76.2**	**57**	**58.5**
HS2-000020BQG	Ealing Council	Lamp post outside No 1. Wells House Road on Old Oak Common Lane	Roadside	**75**	**64**	**58**
HS2-000020BQH	Hillingdon Council	Lamp post on High Road Ickenham	Roadside	-	37.2	**41.6**
HS2-000020BQJ	Camden Council	Grafton Way	Background	-	**54.2**	**51.2**
HS2-000020BQK	Camden Council	Junction of Drummond Street and Cobourg Street	Background	-	37.5	37.4
HS2-000020BQL	Camden Council	Delancey Street	Roadside	-	**49.3**	**51**
HS2-000020BQN	Hillingdon Council	Lamp post on Park Road	Roadside	-	-	**50.1**
HS2-000020BQP	Hillingdon Council	Sign post on Long Lane	Roadside	-	-	**41.8**
HS2-000020BQQ	Kensington and Chelsea Council	Lamp post along Ladbroke Grove, near shops and bus stop at Trevorton Road junction	Kerbside	-	-	**48.2**
HS2-000020BQR	Camden Council	Colocated with Noise install on park road village	Background	-	-	34.8
HS2-000020BQS	Camden Council	Opposite Maria fidelis school on Pheonix Road	Background	-	-	33.1
HS2-000020BQT	Camden Council	Drummond Street	Background	-	-	38.8
HS2-000020BQU	Westminster City Council	Lamppost outside Edgware Road Station	Kerbside	-	-	**61.9**

Notes:

Exceedances of the NO_2 annual mean air quality standard of 40 $\mu g/m^3$ are shown in bold.

Appendix G – Maps of HS2 monitoring survey locations and 2018 monitored results

WORK IN PROGRESS

HS2-000020BPM

HS2-000020BNG

HS2-000020BNS

HS2-000020BN3

Barnet London Boro

Camden London Boro

Brent London Boro

City of Westminster London Boro

Kensington and Chelsea London Boro

Hammersmith and Fulham London Boro

Edgware Road

Cricklewood Broadway

Shoot Up Hill

Kilburn High Road

Maida Vale

Willesden Lane

Willesden

Kilburn

Brondesbury

Brondesbury Park

Dudden Hill Lane

High Road

Kensal Rise

Kensal Green

Willesden Green

Kensal Town

West Kilburn

Maida Vale

Westbourne Green

Ladbroke Grove

Westway

North Kensington

Notting Hill

Regents Canal

Legend

NO_2 Monitoring Positions

2018 Results

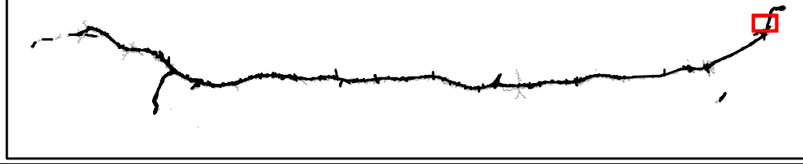
- < 40 µg/m³ (below AQS)
- >= 40 µg/m³ (above AQS)

Work Sections Centreline

Consolidated Land Boundary

District Borough Unitary Boundaries

Map Extent of route



Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

Map Number

HS2-EV-REP-000-000197

Map Name

NO_2 Monitoring Positions London Borough of Brent

(1 of 7)

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: 27/06/19

Legend

NO₂ Monitoring Positions 2018 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), swisstopo, © OpenStreetMap contributors, and the GIS User Community

Map Extent of route

Map Number

HS2-EV-REP-000-000197

Map Name

NO₂ Monitoring Positions
London Borough of Camden

(2 of 7)

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

Scale at A3: 1:20,000

0 200 400 600 800
Metres

Doc Number:

Date: 27/06/19

WORK IN PROGRESS

HS2-000020BN5

HS2-000020BQG

HS2-000020BQF

HS2-000020BP6

HS2-000020BN7

HS2-000020BP7

Brent London Boro

Ealing London Boro

Hammersmith and Fulham London Boro

Hounslow London Boro

Harrow Road

Tokyngton

North Circular Road

Park Royal

Western Avenue

Hanger Lane

Uxbridge Road

High Street

Acton

West Acton

East Acton

Acton Vale Industrial Park

North Acton

Wormwood Scrubs

Legend

NO_2 Monitoring Positions

2018 Results

- < 40 µg/m³ (below AQS)
- >= 40 µg/m³ (above AQS)

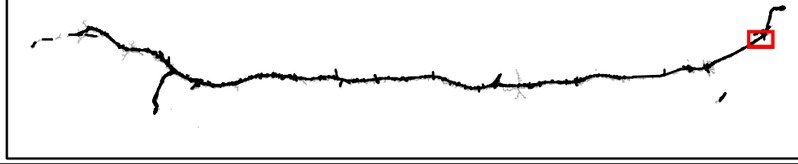
Work Sections Centreline

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

Map Extent of route



Map Number

HS2-EV-REP-000-000197

Map Name

NO_2 Monitoring Positions
London Borough of Ealing

(3 of 7)

Scale at A3: 1:15,000

0 150 300 450 600

Metres

Doc Number:

Date: 27/06/19

WORK IN PROGRESS

HS2-000020BPP

HS2-000020BPT

HS2-000020BN2

HS2-000020BNR

HS2-000020BQE

HS2-000020BN4

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

2018 Results

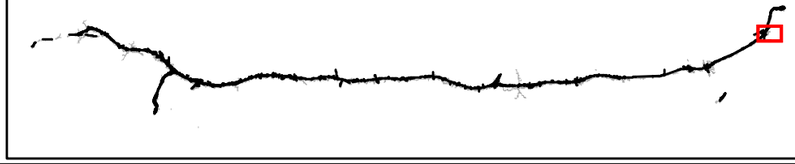
- < 40 µg/m³ (below AQS)
- >= 40 µg/m³ (above AQS)

Work Sections Centreline

Consolidated Land Boundary

District Borough Unitary Boundaries

Map Extent of route



Map Number

HS2-EV-REP-000-000197

Map Name NO_2 Monitoring Positions London Borough of Hammersmith and Fulham

(4 of 7)

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

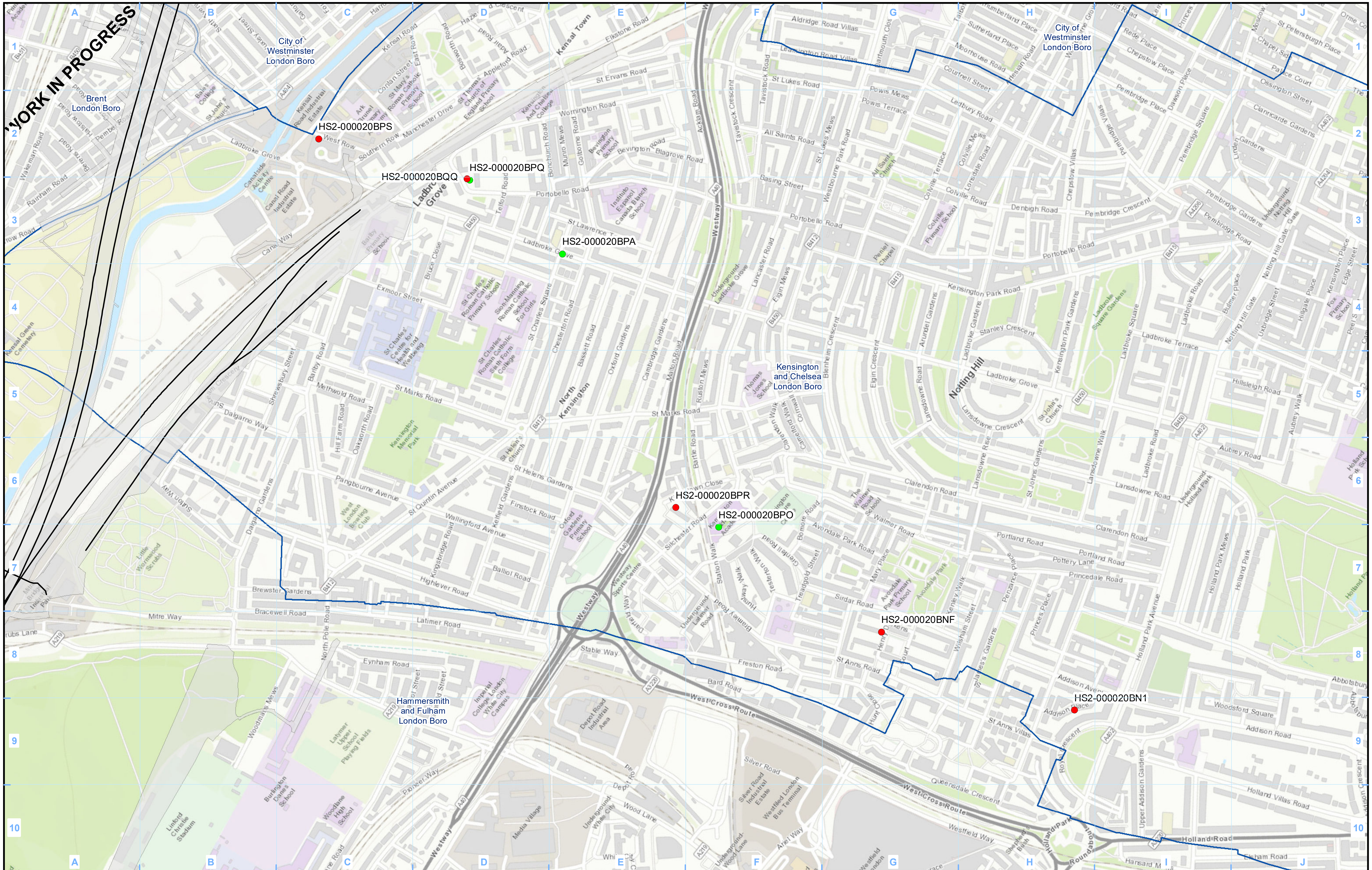
Scale at A3: 1:15,000

0 150 300 450 600

Metres

Doc Number:

Date: 27/06/19



Legend

NO_2 Monitoring Positions

2018 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), swisstopo, © OpenStreetMap contributors, and the GIS User Community

Map Extent of route

Map Number

HS2-EV-REP-000-000197

Map Name NO_2 Monitoring Positions Royal Borough of Kensington and Chelsea

(5 of 7)

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Scale at A3: 1:8,000

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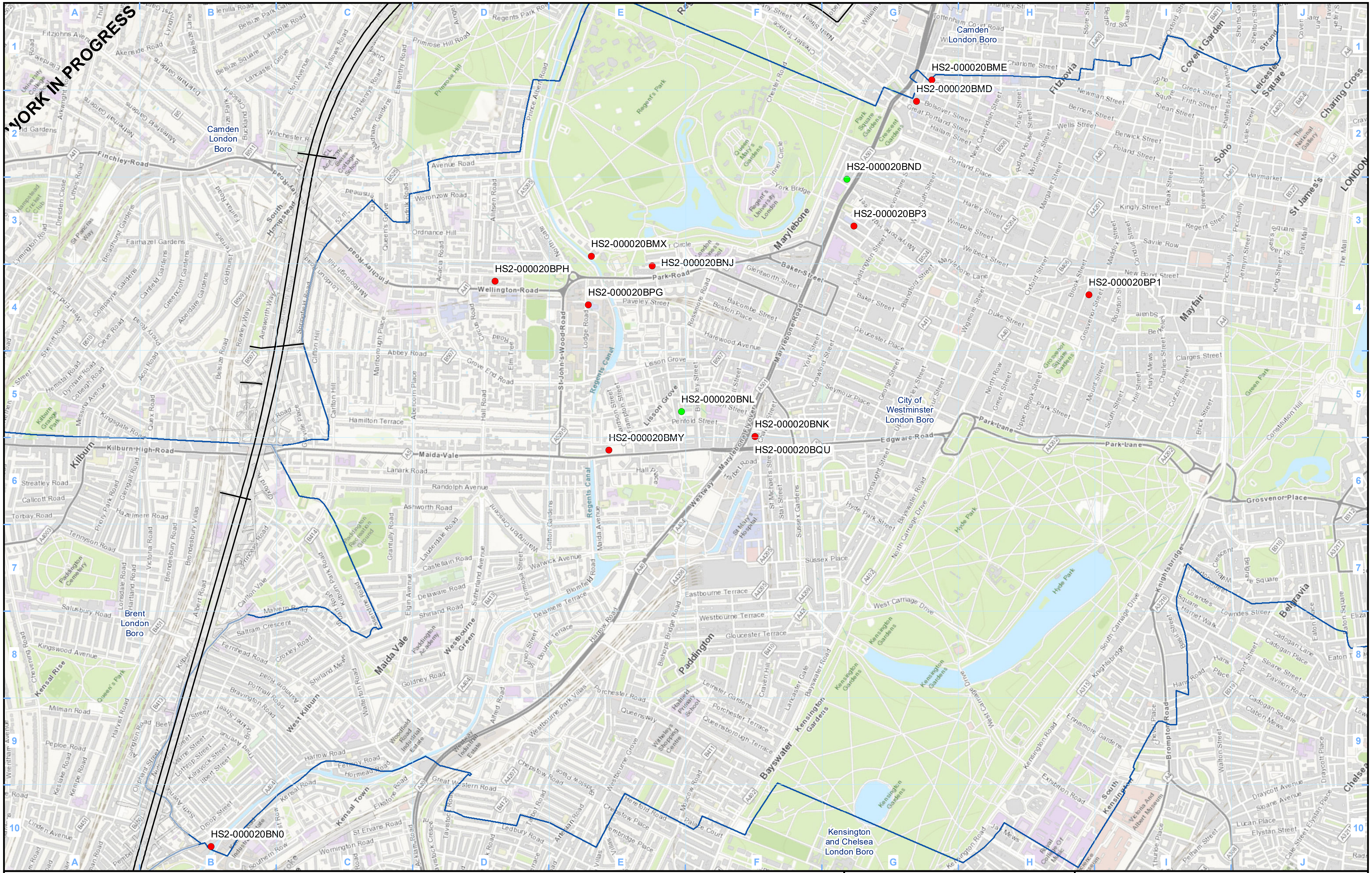
Doc Number:

Date: 27/06/19



Legend

NO₂ Monitoring Positions

2018 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), swisstopo, © OpenStreetMap contributors, and the GIS User Community

Map Extent of route

Map Number

HS2-EV-REP-000-000197

Map Name

NO_2 Monitoring Positions
City of Westminster

(6 of 7)

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Scale at A3: 1:16,500

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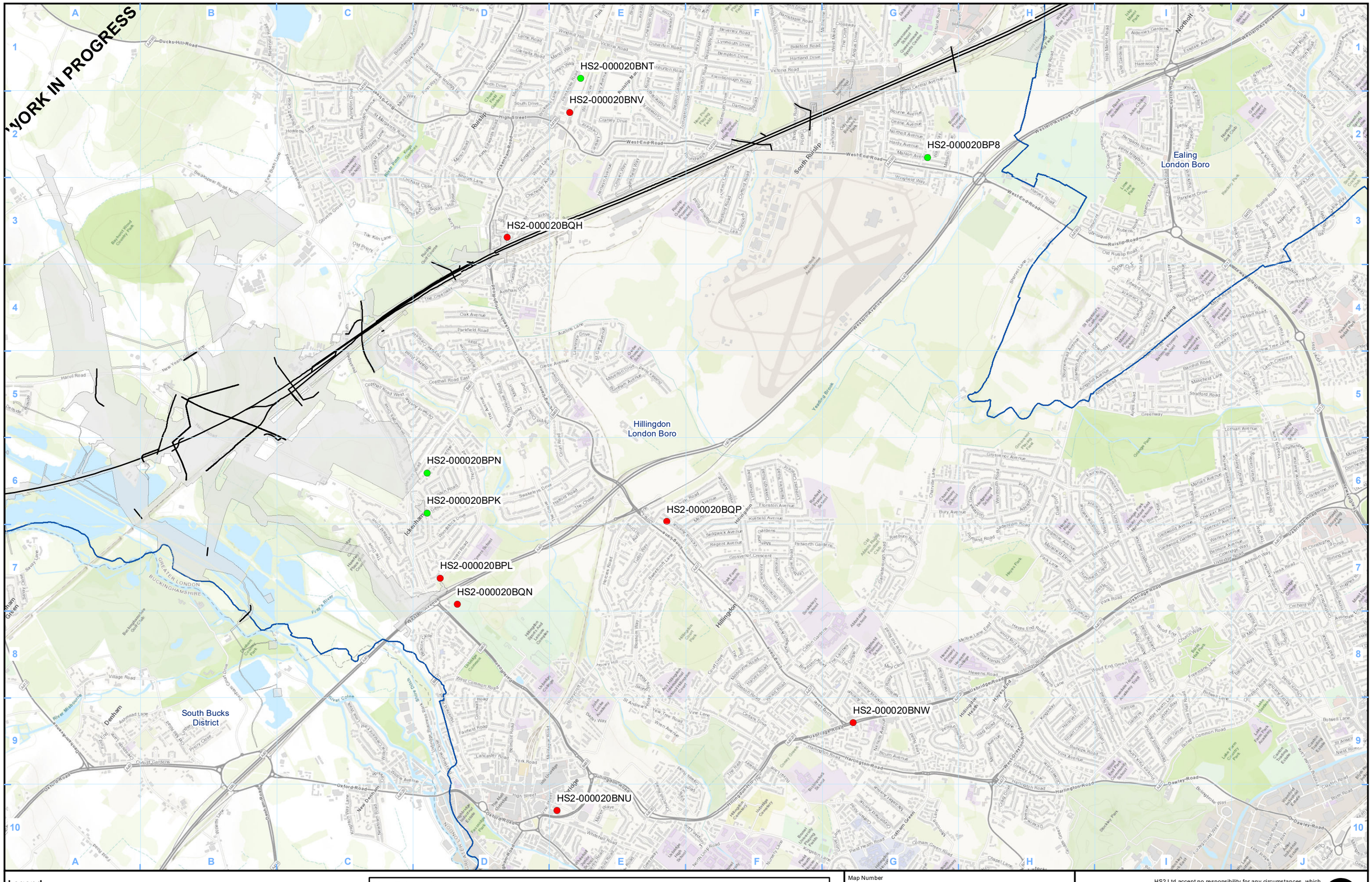
Doc Number:

Date: 27/06/19



Legend

NO$_2$ Monitoring Positions 2018 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), swisstopo, © OpenStreetMap contributors, and the GIS User Community

Map Extent of route

Map Number

HS2-EV-REP-000-000197

Map Name

NO$_2$ Monitoring Positions London Borough of Hillingdon

(7 of 7)

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Registered office: 2 Snowhill, Queensway,
Birmingham B4 6GA.

Scale at A3: 1:25,000

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Metres

Doc Number:

Date: 27/06/19