

Air Quality Annual Report 2019



Department for Transport

High Speed Two (HS2) Limited has been tasked by the Department for Transport (DfT) with managing the delivery of a new national high speed rail network. It is a non-departmental public body wholly owned by the DfT.

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Non-Technical Summary

This 2019 Annual Air Quality Report focusses on the air quality monitoring undertaken in the 2019 calendar year across HS2. The reports detail the monitoring undertaken during the construction works on Phase One and details of the monitoring survey commissioned to provide information on the baseline situation on Phase 2a before construction works begin.

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.

In February 2019, the Supplementary Environmental Statement 2 and Additional Provisions 2 Environmental Statement (SES2 and AP2 ES) was submitted to Parliament in support of the High Speed Rail (West Midlands – Crewe) Bill (Phase 2a). AP2 ES reports any likely significant environmental effects of the proposed amendments made to the scheme having taken into account the environmental information in the main ES as updated by SES1 and SES2, where appropriate. The House of Lords Select Committee considering petitions against the Phase 2a Bill started its hearings in March 2020 but was paused as a result of the Coronavirus lockdown. The Committee is expected to resume its hearing in July 2020.

The HS2 Air Quality Strategy and HS2 Air Quality Information Papers¹, summarise the air quality effects identified in the 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 period, based on 6 months of monitoring data and 2017 calendar year. These reports reviewed baseline conditions prior to the commencement of construction works.

The third annual report focused on reporting monitoring data for air quality around highways, covering the 2018 calendar year during the early stages of construction activity. This fourth report covers the 2019 calendar year, also during the early stages of construction activities in Phase One and baseline conditions prior to the commencement of works in Phase 2a. This report makes reference to the air pollutants and areas where significant effects were identified within the Environmental Statements, as amended. These significant effects along Phase One, for the pollutants nitrogen dioxide and particulate matter, are confined to a limited number of roads in the Greater London area. Potential significant effects in Phase 2a as a result of increased in nitrogen dioxide concentrations were identified at sensitive receptors close to the M6. Therefore, the monitoring data discussed in this report covers the Greater London area for the

pollutants nitrogen dioxide and particulate matter and locations close to the M6 for the pollutant nitrogen dioxide.

HS2 commenced a Phase One and Phase 2a baseline air quality survey at the end of June 2016 and January 2019 respectively. These surveys use diffusion tubes to monitor nitrogen dioxide. The monitoring and reporting of these surveys have 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 2019 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 management of dust emissions at high and medium 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 2019 monitoring data with the predictions from the air quality modelling undertaken for the Environmental Statement.

During 2019 Phase One was in the early stages of construction, and no works had commenced along Phase 2a. HS2 have already made commitments for measures to reduce emissions generated by construction activities. The measures include:

- Construction vehicle emission standards requirements and methods to manage their use via traffic management plans;
- Non-road mobile machinery emission standard requirements; and
- Dust mitigation measures.

The HS2 Information Papers for Air Quality (E31 for Phase One and E14 for Phase 2a) set 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. across Phase One.

Progress and a summary of the impact of these measures to improve air quality during 2019 in Phase One are set out in Section 4.2 and will therefore be reported across Phases 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 Planⁱⁱ 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 Overview

- 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 divided into 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 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 set out the environmental and sustainability commitments that will be observed in the construction of the Proposed Scheme.
- 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 Air Quality Information Papers¹ summarise 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.
- 1.1.6 In February 2019, the Supplementary Environmental Statement 2 and Additional Provisions 2 Environmental Statement (SES2 and AP2 ES) was submitted to Parliament in support of the Bill

¹ HS2 Phase One Information Paper E31: Air Quality

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/672406/E31 - Air Quality v1.5.pdf and HS2 Phase 2a Information Paper E14: Air Quality

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/828982/E14 Air Quality v1.2.pdf

(Phase 2a). AP2 ES reports any likely significant environmental effects of the proposed amendments made to the scheme having taken into account the environmental information in the main ES as updated by SES1 and SES2, where appropriate. The House of Lords Select Committee considering petitions against the Phase 2a Bill started its hearings in March 2020 but was paused as a result of the Coronavirus lockdown. The Committee is expected to resume its hearing in July 2020.

1.1.7 This 2019 Annual Air Quality Report focusses on monitoring undertaken in the 2019 calendar year during Phase One construction works and Phase 2a baseline survey.

1.1.8 One of the key impacts of Phase One, 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 (NO₂) concentrations, and to a much less extent from variations in particulate matter (PM₁₀).

1.1.9 Potential significant effects in Phase 2a, identified in the SES and AP2 ES, as a result of increased in nitrogen dioxide concentrations were identified at sensitive receptors close to the M6. Potential significant effects were predicted across the following local authority areas:

- Stafford seven (7) locations;
- Newcastle-under-Lyme one (1) location; and
- Cheshire East one (1) location.

1.1.10 NO₂ concentrations in these areas were predicted to exceed the air quality standard even without the Proposed Scheme.

1.1.11 The identified significant effects are largely as a result of the existing concentrations of air pollutants within the Greater London and M6 area already being above government air quality standards.

1.2 Management of Air Quality

1.2.1 The HS2 Air Quality Strategy and HS2 Air Quality Information Papersⁱⁱⁱ, summarise the air quality effects identified in the 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.

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 The HS2 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.

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 annual reports published in 2018 (revised in 2019) focused on reporting monitoring data for air quality around highways and covered the 2016 period, based on 6 months of monitoring data and 2017 calendar year. These reports reviewed baseline conditions prior to the commencement of construction works².
- 1.3.2 The third annual report focused on reporting monitoring data for air quality around highways, covering the 2018 calendar year during the early stages of construction activity. This fourth report covers the 2019 calendar year, also during the early stages of construction activities in Phase One and baseline conditions prior to the commencement of works in Phase 2a. This report provides a comparison with the information previously presented in the main ES air quality chapters.
- 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 NO₂ and particulate matter (PM). The area of focus is where significant effects were identified within the ES. These areas were within Greater London and at sensitive receptors along the M6 along the Phase 2b, as such the reporting of monitoring data is for these areas only. For other areas along the route, data from Defra and local authority monitoring surveys provides an indication of baseline. This

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.

data is not reproduced in this report and reference should be made to the relevant Defra and local authority publications and websites.

1.4 Summary of significant effects identified in the Environmental Statement

- 1.4.1 For the ES, calculations of changes in concentrations of nitrogen dioxide (NO₂) and particulate matter (PM₁₀) were calculated. PM_{2.5} concentrations were considered. 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 NO₂ concentrations around certain construction traffic routes in the Greater London area in Phase One, and along the M6 in Phase 2b. Significant effects from changes in the 24-hour daily mean PM₁₀ concentrations were also predicted, but this was limited to the area in the immediate vicinity of Euston Road in London.
- 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 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 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 Phase One ES are presented in Appendix A.

2 Air Quality monitoring data and comparison with the Air Quality Objectives and National Compliance

2.1 Pollutants

2.1.1 The main pollutants of concern for local air quality in relation to road traffic emissions are NO₂ and particulate matter (PM). Further details of each of these pollutants is given below.

Nitrogen dioxide (NO₂)

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

Particulate Matter (PM)

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 PM₁₀. 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 PM₁₀ emissions in the UK are derived from road transport. Particulate matter is 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 2000³, Air Quality (England) (Amendment) Regulations 2002⁴, the Air Quality Standards Regulations 2010⁵ and the Air Quality Standards (Amendment) Regulations 2016⁶; and
- Directive 2008/50/EC on Ambient Air Quality and Cleaner Air for Europe⁷.

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

2.2.3 Table 1 sets out the EU air quality limit values and UK national air quality objectives for the pollutants NO₂ and PM₁₀ for which significant effects were identified. 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
Particulate Matter (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
Particulate Matter (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

⁶ Department for Environment, Food and Rural Affairs, 2016, The Air Quality Standards (Amendment) Regulations 2016, The Stationery 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 area's communities and academic institutions. Data from surveys undertaken by other parties is not reproduced within this report.

2.3.2 HS2 commenced a Phase One and Phase 2a baseline air quality survey at the end of June 2016 and January 2019 respectively in locations where there were predicted to be significant effects on air quality around highways. This baseline air quality survey measured annual mean NO₂, for which potential significant effects were predicted around certain construction traffic routes in the Greater London area and certain locations adjacent to the M6. The Phase One survey has continued throughout the initial enabling works phase and will be continued into the main works construction phase. The Phase 2a baseline survey ran from January to December 2019.

2.3.3 In relation to where significant effects were identified for PM₁₀ for air quality around highways, supplementary surveys are not being undertaken as existing monitoring sites operated by Defra and/or local authorities are considered to give sufficient coverage⁸.

2.4 Summary of NO₂ monitoring methodology

2.4.1 A survey of NO₂ concentrations using diffusion tubes commenced at the end of June 2016 for locations within Greater London, and at the beginning of January 2019 for locations along the M6 along the Phase 2a route. The surveys were 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

⁸ HS2 are undertaking surveys of indicative PM10 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/>

laboratory for analysis at the end of each month and new diffusion tubes are deployed for the next month.

- 2.4.4 In accordance with Defra LAQM.TG(16) guidance, NO₂ diffusion tube surveys aim for a minimum data capture of 75% for each site for each year of the survey (i.e. there needs to be 9 out of 12 months with valid data at each site). This gives some allowance for the diffusion tube at a site to go missing or be damaged for a given month.
- 2.4.5 Where data capture over the year is less than 75% a process of annualisation can be applied in accordance with Defra LAQM.TG(16) guidance to calculate an annual mean equivalent for the site based on the comparison of the months with available data against a full dataset for a long term fixed continuous monitoring site operated by Defra or local authorities.
- 2.4.6 A process of bias adjustment is also undertaken each year. 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 surveys 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 2019 were supplied by Gradko Environmental. The diffusion tube preparation used was 20% triethanolamine (TEA) in de-ionised water¹⁰.

Calculation of the annual mean NO₂ concentration

- 2.4.9 Data collected with the diffusion tubes for the January to December 2019 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 2019 were annualised in line with Defra LAQM.TG(16) guidance. The background¹¹ continuous monitoring sites Camden – Bloomsbury and Kensington and Chelsea – North Kensington were used to derive an annualisation factor for the Phase One data set. As there were no local continuous monitors to co-locate with for

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.

the Phase 2a survey, two relevant continuous urban background sites have been used for annualisation, including Stoke-on-Trent and Walsall Woodlands.

2.4.12 Phase One bias adjustment factors for background, roadside and kerbside locations were derived using Defra's local bias adjustment factors spreadsheet¹². Bias adjustment factors were derived using the data from diffusion tubes co-located with automatic monitoring sites. The background sites used were Camden – Bloomsbury and Kensington and Chelsea – North Kensington. The roadside sites used were, Camden – Euston Road, Ealing – Hanger Lane, 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 percent, 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 NO₂ survey monitoring results

2.5.1 Full monitoring results for the air quality NO₂ diffusion tube surveys 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. The most recent monitoring data from relevant Defra and local authority monitoring sites are presented in the London Air Quality Network Summary Report 2018¹³, 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 PM₁₀. As a minimum standard of measurement uncertainty, these instruments are certified through MCERTS as being indicative ambient particulate monitors. Monitoring is only

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>

¹³ Kings College London, 2019, London Air Quality Network Summary Report 2018, October 2019.

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 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 predicted concentrations in the Environmental Statement

3.1 Phase One

3.1.1 Appendix E presents a comparison between the calculated 2019 results, the modelled prediction for peak NO₂ annual mean concentrations from the ES for the scenario without and with the Proposed Scheme respectively in place¹⁴. Appendix F presents a comparison between the Phase One 2016, 2017, 2018 and 2019 monitored results.

3.1.2 The comparison between 2016, 2017, 2018 and 2019 is an indicative comparison rather than an absolute one. There may be differences in the characteristics of the individual diffusion tube locations and the nearest receptor location assessed in the ES. For instance, receptor locations assessed in the ES were typically at the facades of properties adjacent to roads affected by the Proposed Scheme. However, due to the need to be able to access the sites to mount the diffusion tubes on a monthly basis they have typically been located on publicly accessible street furniture such as lampposts and signposts. The diffusion tube locations are intended to be representative of exposure locations along roads where significant effects were predicted during construction. In some instances, they are closer to roads than the locations where the public would typically be exposed.

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

3.1.4 The 2017 'without scheme' comparison of the monitored results indicates that:

- Of the 113 locations where monitoring was undertaken in 2019, monitored concentrations from 47 tubes were within $\pm 25\%$ of the modelled concentrations.
- Where the comparison has a difference of more than $\pm 25\%$:
 - Monitored concentrations were higher than the modelled concentrations for 1 site (1% of the overall sites), which occurred at a location adjacent to relatively high traffic roads for the area, specifically Hendon Way / Finchley Road.
 - Modelled concentrations were higher than the monitored concentrations for 44 sites (39% of the overall sites), which were typically associated with locations on side streets away from major roads.
 - A further 21 tubes are not located in proximity to modelled receptors and thus have not undergone a comparison.

¹⁴ Modelled annual mean NO₂ 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).

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

- Of the 113 locations where monitoring was undertaken in 2019, monitored concentrations from 47 tubes were within $\pm 25\%$ of the modelled concentrations.
- Where comparison has a difference of more than $\pm 25\%$:
 - Monitored concentrations were higher than the modelled concentrations for 1 site (1% of the overall sites), which occurred at a location adjacent to relatively high traffic roads for the area, specifically Hendon Way / Finchley Road.
 - Modelled concentrations were higher than the monitored concentrations for 44 sites (39% of the overall sites), which were typically associated with locations on side streets away from major roads.
 - 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 the 2019 monitored annual mean NO₂ concentrations and the modelled annual mean NO₂ 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 congestion¹⁵; 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 due to the

¹⁵ Where there is congestion the real-world speeds of traffic are typically lower than 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.

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 113 diffusion tube monitoring locations in 2019, 1 location was not monitored prior to 2019. Of the remaining 112 diffusion tubes, 108 locations indicated a reduction or no change in monitored concentrations between 2018 and 2019, with 4 locations indicating a slight increase in monitored concentrations. The number of locations at which the monitored concentrations exceeded the Air Quality Objective decreased between 2018 and 2019. No additional locations are reporting an exceedance with the Air Quality Objective. Eleven (11) new locations noted compliance with the Air Quality Objective when compared to the 2018 monitoring results.

3.2 Phase 2a

3.2.1 Appendix E presents the Phase 2a 2019 baseline monitored results. There were ten (10) monitoring sites installed across the three study areas close to the M6 in Stafford, Newcastle-under-Lyme and Cheshire East, including:

- South-west of Stafford: eight (8) sites;
- Madeley Health: one (1) site; and
- Oakhanger: one (1) site.

3.2.2 Measurements of NO₂ concentrations were obtained on a monthly basis in 2019 and analysis was undertaken to compare data collated against the annual mean air quality standard of 40µg/m³.

3.2.3 Measured NO₂ concentrations were well below the annual mean air quality standard of 40µg/m³ at all sites.

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 Air Quality Information Papers (E31: Phase One and E14: Phase 2a).

4.1.2 These measures include:

- Construction vehicle emission standards requirements and methods to manage their use via traffic management plans;
- Non-Road Mobile Machinery (NRMM) emission standard requirements; and
- Dust mitigation measures as set out in the CoCP.

4.2 Phase One progress and impact of measures to address Air Quality

4.2.1 Phase One is still 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 years 2018 and 2019 are representative of the enabling works and therefore early construction.

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 in Phase One came into effect on 14 September 2017 with the commencement of early works, including ground investigation surveys, land preparation works, ecological surveys, etc.

4.2.3 As Phase 2a commences into early environmental works emission standards for construction vehicle emissions, NRMM and dust management will similarly be applied as in Phase One. Phase 2a Information Paper E14: Air Quality sets out these HS2 emission standards applicable from the start of works.

Vehicle and NRMM Emission Compliance

4.2.4 The HS2 Phase One route is divided into 3 areas to show compliance, 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.

4.2.5 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 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 and Requirements

Vehicle Class & Minimum Vehicle Emission Standard	Area South	Rest of Route (Area Central and Area North)
Heavy Goods Vehicles (HGVs) <ul style="list-style-type: none"> • 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%
Light Duty Vehicles (LDVs) <ul style="list-style-type: none"> • 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	

4.2.6 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 Requirements

Area	London SPG Stage Requirements		HS2 Requirements	
	From 2015	From Sept 2020	From 2017	From 2020 (*)
Central Activity Zone (includes Euston)	Stage IIIB	Stage IV	Stage IV ^(1,2)	Stage V
Rest of Greater London	Stage IIIA	Stage IIIB	Stage IIIB ⁽²⁾	Stage IV ^(1,2)
Rest of Country	Not Applicable	Not Applicable	Stage IIIB ⁽²⁾	Stage IV ^(1,2)
Notes:				
The above emission standard requirements should be read in conjunction with High Speed Two Information Paper, E31: Air Quality.				
⁽¹⁾ Stage IIIB for 37 ≤ P < 56kW, as there is no corresponding Stage (IV) at EU Level				
⁽²⁾ Stage IIIA for constant speed engines of any power, as there is no corresponding Stage IIIB or IV at EU level.				
(*) Following an annual review of the NRMM requirements, as well as independent advice from the Energy Saving Trust, a Block Exemption was put in place for 2020 extending the 2017 requirements for an additional year.				

4.2.7 The 2019 vehicle and NRMM emission compliance figures are presented in Table 4.

Table 4: Construction Vehicle Emission Targets and Requirements

Area	Category	Target / Requirement	Compliance Achieved
Area North	LDV	80% (Target)	62 %
	HGV	100% (Target)	90 %
	NRMM	100% (Requirement)	97 %
Area Central	LDV	80% (Target)	71 %
	HGV	100% (Target)	85 %
	NRMM	100% (Requirement)	99 %
Area South	LDV	100% (Target)	80 %
	HGV	100% (Requirement)	99 %
	NRMM (CAZ)	100% (Requirement)	100 %
	NRMM (Greater London)	100% (Requirement)	99 %

Innovations

4.2.8 Through 2019, HS2 has continued to work with key partners within the industry in considering innovative means to reducing air quality emissions associated with our works. These projects are still ongoing, as key milestones are met these will be publicly shared. Projects include:

- Construction Equipment Association Emissions Compliance Verification System;
- NRMM emission reduction project; and
- Clean Air Gas Engine (CAGE) project.

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

4.2.10 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 commitments made, 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

Phase One

The number of receptors with significant effects in Phase One is presented in Table 5. This has been calculated from the annual mean NO₂ modelling results presented in the ES, as amended. These calculations are a combination of results from the Supplementary Environmental Statement (SES) and Additional Provision (AP) 2, SES2 and AP3, SES3 and AP4. Air quality modelling was not undertaken for the SES4 and AP5 ES. The calculations use the latest reported modelling result for each receptor.

Table 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

Phase 2a

Significant effects in Phase 2a were predicted at 9 residential receptors for NO₂ concentrations near the M6. Potential significant effects were predicted across the following local authority areas:

- Stafford seven (7) locations;
- Newcastle-under-Lyme one (1) location; and
- Cheshire East one (1) location.

NO₂ concentrations in these areas were predicted to exceed the air quality standard even without the Proposed Scheme.

Appendix B – HS2 Air Quality monitoring survey locations

Table 6 and 7 gives details of the locations included in the HS2 NO₂ diffusion tube surveys during 2019 for Phase One and Phase 2a respectively. Appendix G presents maps of the locations, labelled with the site ID, colour coded based on the measured concentration.

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Table 6: Details of HS2 Phase One air quality NO₂ diffusion tube monitoring survey locations

Site ID	Local authority	Site location	Site location type	X coordinate	Y coordinate	Height (m)	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
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

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Site ID	Local authority	Site location	Site location type	X coordinate	Y coordinate	Height (m)	Site purpose
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
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

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Site ID	Local authority	Site location	Site location type	X coordinate	Y coordinate	Height (m)	Site purpose
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
HS2-000020BNG	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
HS2-000020BNL	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
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

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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	Colocation kerbside
HS2-000020BP4	Camden Council	Triplicate site on Finchley Road next to Swiss Cottage kerbside automatic monitoring station	Kerbside	526633	184392	3.0	Colocation kerbside
HS2-000020BP5	Camden Council	Triplicate site next to the Euston Road roadside automatic monitoring stations	Roadside	529895	182657	2.5	Colocation roadside
HS2-000020BP6	Ealing Council	Triplicate site next to the Ealing, Western Avenue Acton roadside automatic monitoring station	Roadside	520430	181950	2.0	Colocation roadside
HS2-000020BP7	Ealing Council	Triplicate site next to the Ealing, Hangar Lane Gyrotory roadside automatic monitoring station	Roadside	518537	182708	2.0	Colocation roadside
HS2-000020BP8	Hillingdon Council	Triplicate site at South Ruislip roadside automatic monitoring station	Roadside	510858	184916	2.5	Colocation roadside
HS2-000020BP9	Camden Council	Triplicate site in Russell Square next to Bloomsbury urban background automatic monitoring station	Background	530120	182034	2.5	Colocation 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	Colocation 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

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Site ID	Local authority	Site location	Site location type	X coordinate	Y coordinate	Height (m)	Site purpose
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
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
HS2-000020BPR	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 Ladbrooke 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
HS2-000020BPW	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
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

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Site ID	Local authority	Site location	Site location type	X coordinate	Y coordinate	Height (m)	Site purpose
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
HS2-000020BQF	Ealing Council	Conway Drive signpost	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
HS2-000020BQL	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	Signpost 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	Lamp post on Park Village East	Background	528682	183505	2.4	Predicted significant effect

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Site ID	Local authority	Site location	Site location type	X coordinate	Y coordinate	Height (m)	Site purpose
HS2-000020BQS	Camden Council	Opposite Maria fidelis school on Phoenix 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	Lamp post outside Edgware Road Station	Kerbside	527048	181731	2.2	Predicted significant effect
HS2-000020BQV	Kensington and Chelsea Council	Lamp post on St Ann's Street	Kerbside	523838	180606	2.4	Predicted significant effect

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Table 7: Details of HS2 Phase 2a air quality NO₂ diffusion tube monitoring survey locations

Site ID	Local authority	Site location	Site location type	X coordinate	Y coordinate	Height (m)	Site purpose
1	Staffordshire	South-west of Stafford (CA2) – Ashflats Lane	Roadside	392247	319432	2.0	Predicted significant effect
2	Staffordshire	South-west of Stafford (CA2) – Ash Rise	Suburban	392355	319784	2.0	Predicted significant effect
3	Staffordshire	South-west of Stafford (CA2) – Barn Bank Lane	Suburban	392217	319929	2.0	Predicted significant effect
4	Staffordshire	South-west of Stafford (CA2) – Southfields Close	Suburban	391894	320423	2.0	Predicted significant effect
5	Staffordshire	South-west of Stafford (CA2) – Devon Way	Suburban	391717	320592	2.0	Predicted significant effect
6	Staffordshire	South-west of Stafford (CA2) – Burton Manor Road E	Roadside	391559	320699	2.1	Predicted significant effect
7	Staffordshire	South-west of Stafford (CA2) – Burton Manor Road W	Kerbside	391539	320634	2.15	Predicted significant effect
8	Staffordshire	South-west of Stafford (CA2) – Crinan Grove	Suburban	391498	320799	2.0	Predicted significant effect
9	Newcastle under Lyme	Madeley Heath (CA4) – Newcastle Road	Roadside	378110	345523	2.15	Predicted significant effect
10	Cheshire East Council	Oakhanger (CA5) – Nursery Road	Rural	377035	355030	2.0	Predicted significant effect

Appendix C – Annualisation and bias adjustment of NO₂ diffusion tubes

Table 8: Annualisation and bias adjustment factors applied to each monitoring site across Phase One

Site ID	Local authority	Site location	Site location type	2019 annualisation factor ¹⁶	2019 bias adjustment factor
HS2-000020BM5	Camden Council	Junction of St Chad's Street and Grays Inn Road	Roadside	Not annualised	0.948
HS2-000020BM6	Camden Council	Brunswick Square	Roadside	Not annualised	0.948
HS2-000020BM7	Camden Council	Chalton Street	Roadside	0.844	0.948
HS2-000020BM8	Camden Council	Junction of Euston Square and Grafton Place	Roadside	Not annualised	0.948
HS2-000020BM9	Camden Council	Junction of Endsleigh Gardens and Upper Woburn Place	Roadside	Not annualised	0.948
HS2-000020BMA	Camden Council	Junction of Euston Road and Gower Street	Roadside	Not annualised	0.948
HS2-000020BMB	Camden Council	Whitfield Street	Background	Not annualised	0.855
HS2-000020BMC	Camden Council	Hampstead Road	Roadside	Not annualised	0.948
HS2-000020BMD	Westminster City Council	Lamp post on Park Crescent Road	Roadside	Not annualised	0.948
HS2-000020BME	Westminster City Council	Lamp post in between A501 and A4201	Roadside	Not annualised	0.948
HS2-000020BMF	Camden Council	Junction of Polygon Road and Ossulston Street	Background	Not annualised	0.855
HS2-000020BMH	Camden Council	Nash Street	Background	Not annualised	0.855
HS2-000020BMJ	Camden Council	Junction on Robert Street and Stanhope Street	Background	Not annualised	0.855
HS2-000020BMK	Camden Council	Junction of Plender Street and Bayham Street	Roadside	Not annualised	0.948
HS2-000020BML	Camden Council	Junction of Arlington Road and Mornington Crescent	Background	Not annualised	0.855
HS2-000020BMM	Camden Council	Junction of Bayham Street and Pratt Street	Roadside	Not annualised	0.948
HS2-000020BMN	Camden Council	Junction of Delancey Street and Albert Street	Roadside	Not annualised	0.948
HS2-000020BMQ	Camden Council	Junction of Parkway and Delancey Street	Roadside	Not annualised	0.948
HS2-000020BMR	Camden Council	Junction of Oval Road and Jamestown Road	Background	Not annualised	0.855
HS2-000020BMS	Camden Council	Junction of Chalk Farm Road and Castlehaven Road	Roadside	Not annualised	0.948
HS2-000020BMT	Camden Council	Junction of Camden Road and Camden Street	Kerbside	Not annualised	0.881

¹⁶ Sites have not been annualised where there is greater than 75% or less than 25% data capture

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Site ID	Local authority	Site location	Site location type	2019 annualisation factor ¹⁶	2019 bias adjustment factor
HS2-000020BMU	Camden Council	Junction of Southampton Road and Fleet Road	Roadside	Not annualised	0.948
HS2-000020BMV	Camden Council	Primrose Hill Road	Roadside	Not annualised	0.948
HS2-000020BMW	Camden Council	Junction of Finchley Road and Hilgrove Road	Roadside	0.926	0.948
HS2-000020BMX	Westminster City Council	Sign post by roundabout on A5205	Roadside	Not annualised	0.948
HS2-000020BMY	Westminster City Council	Lamp post between Blomfield Road and Edgware Road	Roadside	Not annualised	0.948
HS2-000020BMZ	Camden Council	Junction of Finchley Road and Hendon Way	Roadside	Not annualised	0.948
HS2-000020BN0	Westminster City Council	Lamp post on Ladbroke Grove	Roadside	Not annualised	0.948
HS2-000020BN1	Kensington and Chelsea Council	Sign post on St Ann's Villas	Roadside	Not annualised	0.948
HS2-000020BN2	Hammersmith and Fulham Council	Lamp post on Du Cane Road	Roadside	Not annualised	0.948
HS2-000020BN3	Brent Council	Sign post on High Street Harlesden	Roadside	Not annualised	0.948
HS2-000020BN4	Hammersmith and Fulham Council	End of cycle lane sign on Old Oak Road	Roadside	Not annualised	0.948
HS2-000020BN5	Ealing Council	Sign post on Victoria Road	Roadside	Not annualised	0.948
HS2-000020BN7	Ealing Council	The Approach street sign	Roadside	Not annualised	0.948
HS2-000020BNA	Camden Council	Junction of Regent's Park Road and Rothwell Street	Roadside	Not annualised	0.948
HS2-000020BNB	Camden Council	Junction of Gloucester Gate Bridge and Park Village East	Roadside	0.8	0.948
HS2-000020BNC	Camden Council	Junction of Outer Circle and Gloucester Gate	Background	Not annualised	0.855
HS2-000020BND	Westminster City Council	Outer Circle Regent's Park	Kerbside	Not annualised	0.881
HS2-000020BNG	Brent Council	Lamp post on Donnington Road	Roadside	Not annualised	0.948
HS2-000020BNH	Camden Council	Junction of Parkway and Albert Street	Kerbside	Not annualised	0.881
HS2-000020BNJ	Westminster City Council	Light post on Park Road	Roadside	Not annualised	0.948
HS2-000020BNL	Westminster City Council	Lamp post on Penfold Street	Background	Not annualised	0.855
HS2-000020BNN	Camden Council	Lincoln's Inn Fields	Background	Not annualised	0.855
HS2-000020BNQ	Camden Council	Camley Street	Background	0.999	0.855
HS2-000020BNR	Hammersmith and Fulham Council	Lamp posts in Shepherd's Bush Common	Background	Not annualised	0.855
HS2-000020BNS	Brent Council	Lamp post on Tower Road by Willesden Jewish Cemetery	Background	Not annualised	0.855

Site ID	Local authority	Site location	Site location type	2019 annualisation factor ¹⁶	2019 bias adjustment factor
HS2-000020BNT	Hillingdon Council	Lamp post on Pembroke Road	Background	Not annualised	0.855
HS2-000020BNU	Hillingdon Council	Cowley Road sign post at junction with Hillingdon Road	Roadside	Not annualised	0.948
HS2-000020BNV	Hillingdon Council	High Street sign post at junction with Pembroke Road	Roadside	Not annualised	0.948
HS2-000020BNW	Hillingdon Council	Signpost on A4020 Uxbridge Road at junction with Long Lane	Roadside	Not annualised	0.948
HS2-000020BNX	Hammersmith and Fulham Council	Signpost on A402 Goldhawk Road	Roadside	Not annualised	0.948
HS2-000020BNY	Camden Council	Junction of Mill Lane and Hillfield Road	Roadside	Not annualised	0.948
HS2-000020BNZ	Camden Council	Mansfield Road	Roadside	Not annualised	0.948
HS2-000020BP0	Camden Council	Junction of Camden Road and Torriano Avenue	Roadside	Not annualised	0.948
HS2-000020BP1	Westminster City Council	Lamp post on Brook Street	Roadside	Not annualised	0.948
HS2-000020BP2	Camden Council	Junction of Grays Inn Road and Holborn	Roadside	Not annualised	0.948
HS2-000020BP3	Westminster City Council	Triplicate site next to the Marylebone Road kerbside automatic monitoring stations	Kerbside	Not annualised	0.881
HS2-000020BP4	Camden Council	Triplicate site on Finchley Road next to Swiss Cottage kerbside automatic monitoring station	Kerbside	1.04	0.881
HS2-000020BP5	Camden Council	Triplicate site next to the Euston Road roadside automatic monitoring stations	Roadside	Not annualised	0.948
HS2-000020BP6	Ealing Council	Triplicate site next to the Ealing, Western Avenue Acton roadside automatic monitoring station	Roadside	Not annualised	0.948
HS2-000020BP7	Ealing Council	Triplicate site next to the Ealing, Hangar Lane Gyrotory roadside automatic monitoring station	Roadside	Not annualised	0.948
HS2-000020BP8	Hillingdon Council	Triplicate site at South Ruislip roadside automatic monitoring station	Roadside	Not annualised	0.948
HS2-000020BP9	Camden Council	Triplicate site in Russell Square next to Bloomsbury urban background automatic monitoring station	Background	Not annualised	0.855

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Site ID	Local authority	Site location	Site location type	2019 annualisation factor ¹⁶	2019 bias adjustment factor
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	0.855
HS2-000020BPB	Camden Council	Camden High Street	Roadside	Not annualised	0.948
HS2-000020BPC	Camden Council	Castlehaven Road	Background	Not annualised	0.855
HS2-000020BPD	Camden Council	Prince of Wales Road	Roadside	Not annualised	0.948
HS2-000020BPE	Camden Council	Haverstock Hill	Roadside	Not annualised	0.948
HS2-000020BPF	Camden Council	Junction of Primrose Gardens and England's Lane	Background	Not annualised	0.855
HS2-000020BPG	Westminster City Council	Lamp post on St John's Wood Street	Roadside	Not annualised	0.948
HS2-000020BPH	Westminster City Council	Lamp post St John's Wood Terrace	Roadside	Not annualised	0.948
HS2-000020BPK	Hillingdon Council	Lamp post in crescent off Swakeleys Road	Roadside	Not annualised	0.948
HS2-000020BPL	Hillingdon Council	Warren Road sign post on corner of Swakeleys Road and Warren Road	Roadside	Not annualised	0.948
HS2-000020BPM	Brent Council	Lamp post along Gorefield Place near block of flats	Background	Not annualised	0.855
HS2-000020BPN	Hillingdon Council	Lamp post on B467	Roadside	Not annualised	0.948
HS2-000020BPO	Kensington and Chelsea Council	Lamp post off Silchester Road	Roadside	Not annualised	0.948
HS2-000020BPP	Hammersmith and Fulham Council	Sign post on A219 Scrubs Lane, South of Harrow Road	Roadside	Not annualised	0.948
HS2-000020BPR	Kensington and Chelsea Council	Lamp post at junction of Crowthorne Road and Bramley Road	Roadside	Not annualised	0.948
HS2-000020BPS	Kensington and Chelsea Council	Lamp post by fence on B450 Ladbroke Grove, south of A404 Harrow Road	Roadside	Not annualised	0.948
HS2-000020BPT	Hammersmith and Fulham Council	Controlled Zone/Zone Ends road sign on A219 Scrubs Lane, north of Hythe Road	Roadside	Not annualised	0.948
HS2-000020BPU	Camden Council	Junction of Gower Street and Grafton Way	Roadside	Not annualised	0.948
HS2-000020BPW	Camden Council	Junction of Delancey Street and Arlington Road	Roadside	Not annualised	0.948
HS2-000020BPX	Camden Council	Netley Street	Background	Not annualised	0.855
HS2-000020BPY	Camden Council	Stanhope Street	Background	Not annualised	0.855
HS2-000020BPZ	Camden Council	Albany Street	Roadside	Not annualised	0.948
HS2-000020BQ0	Camden Council	Werrington Street	Background	Not annualised	0.855
HS2-000020BQ1	Camden Council	Polygon Road	Background	Not annualised	0.855

Site ID	Local authority	Site location	Site location type	2019 annualisation factor ¹⁶	2019 bias adjustment factor
HS2-000020BQ2	Camden Council	Alexandra Place	Background	Not annualised	0.855
HS2-000020BQ3	Camden Council	Harrington Square	Kerbside	Not annualised	0.881
HS2-000020BQ4	Camden Council	Junction of North Gower Street and Starcross Street	Background	Not annualised	0.855
HS2-000020BQ5	Camden Council	Adelaide Road	Roadside	Not annualised	0.948
HS2-000020BQ6	Camden Council	Mornington Terrace	Background	Not annualised	0.855
HS2-000020BQ7	Camden Council	Arlington Road	Background	Not annualised	0.855
HS2-000020BQ8	Camden Council	Clarkson Row	Background	Not annualised	0.855
HS2-000020BQ9	Camden Council	Park Village East	Background	Not annualised	0.855
HS2-000020BQA	Camden Council	Eversholt Street	Kerbside	Not annualised	0.881
HS2-000020BQB	Camden Council	Junction of Harrington Street and Varndell Street	Background	Not annualised	0.855
HS2-000020BQC	Camden Council	Junction of Robert Street and Hampstead Road	Kerbside	Not annualised	0.881
HS2-000020BQD	Camden Council	Drummond Crescent	Background	Not annualised	0.855
HS2-000020BQE	Hammersmith and Fulham Council	Lamp post next to No 11 Wulfstan Street	Background	Not annualised	0.855
HS2-000020BQF	Ealing Council	Conway Drive signpost	Roadside	Not annualised	0.948
HS2-000020BQG	Ealing Council	Lamp post outside No 1. Wells House Road on Old Oak Common Lane	Roadside	Not annualised	0.948
HS2-000020BQH	Hillingdon Council	Lamp post on High Road Ickenham	Roadside	Not annualised	0.948
HS2-000020BQJ	Camden Council	Grafton Way	Background	Not annualised	0.855
HS2-000020BQL	Camden Council	Delancey Street	Roadside	Not annualised	0.948
HS2-000020BQN	Hillingdon Council	Lamp post on Park Road	Roadside	Not annualised	0.948
HS2-000020BQP	Hillingdon Council	Sign post on Long Lane	Roadside	Not annualised	0.948
HS2-000020BQQ	Kensington and Chelsea Council	Lamp post along Ladbroke Grove, near shops and bus stop at Trevorton Road junction	Kerbside	Not annualised	0.881
HS2-000020BQR	Camden Council	Lamp post on Park Village East	Background	Not annualised	0.855
HS2-000020BQS	Camden Council	Opposite Maria fidelis school on Phoenix Road	Background	Not annualised	0.855
HS2-000020BQT	Camden Council	Drummond Street	Background	Not annualised	0.855
HS2-000020BQU	Westminster City Council	Lamp post outside Edgware Road Station	Kerbside	Not annualised	0.881
HS2-000020BQV	Kensington and Chelsea Council	Lamp post on St Ann's Street	Kerbside	Not annualised	0.881

Table 9: Annualisation and bias adjustment factors applied to each monitoring site across Phase 2a

Site ID	Local authority	Site location	Site location type	2019 annualisation factor ¹⁷	2019 bias adjustment factor
1	Staffordshire	South-west of Stafford (CA2) – Ashflats Lane	Roadside	Not annualised	0.93
2	Staffordshire	South-west of Stafford (CA2) – Ash Rise	Suburban	Not annualised	0.93
3	Staffordshire	South-west of Stafford (CA2) – Barn Bank Lane	Suburban	Not annualised	0.93
4	Staffordshire	South-west of Stafford (CA2) – Southfields Close	Suburban	Not annualised	0.93
5	Staffordshire	South-west of Stafford (CA2) – Devon Way	Suburban	Not annualised	0.93
6	Staffordshire	South-west of Stafford (CA2) – Burton Manor Road E	Roadside	Not annualised	0.93
7	Staffordshire	South-west of Stafford (CA2) – Burton Manor Road W	Kerbside	Not annualised	0.93
8	Staffordshire	South-west of Stafford (CA2) – Crinan Grove	Suburban	Not annualised	0.93
9	Newcastle under Lyme	Madeley Heath (CA4) – Newcastle Road	Roadside	1.086	0.93
10	Cheshire East Council	Oakhanger (CA5) – Nursery Road	Rural	Not annualised	0.93

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

Appendix D – Air Quality Monitoring Results

HS2 NO₂ diffusion tube results

Table 10: Annual mean Phase One NO₂ monitoring results for 2019

Site ID	Local authority	Site location	Site location type	2019 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	45.9
HS2-000020BM6	Camden Council	Brunswick Square	Roadside	40.3
HS2-000020BM7	Camden Council	Chalton Street	Roadside	52.0
HS2-000020BM8	Camden Council	Junction of Euston Square and Grafton Place	Roadside	56.3
HS2-000020BM9	Camden Council	Junction of Endsleigh Gardens and Upper Woburn Place	Roadside	49.1
HS2-000020BMA	Camden Council	Junction of Euston Road and Gower Street	Roadside	51.4
HS2-000020BMB	Camden Council	Whitfield Street	Background	37.2
HS2-000020BMC	Camden Council	Hampstead Road	Roadside	61.5
HS2-000020BMD	Westminster City Council	Lamp post on Park Crescent Road	Roadside	60.0
HS2-000020BME	Westminster City Council	Lamp post in between A501 and A4201	Roadside	77.2
HS2-000020BMF	Camden Council	Junction of Polygon Road and Ossulston Street	Background	28.6
HS2-000020BMH	Camden Council	Nash Street	Background	30.9
HS2-000020BMJ	Camden Council	Junction on Robert Street and Stanhope Street	Background	29.8
HS2-000020BMK	Camden Council	Junction of Plender Street and Bayham Street	Roadside	48.2
HS2-000020BML	Camden Council	Junction of Arlington Road and Mornington Crescent	Background	30.1
HS2-000020BMM	Camden Council	Junction of Bayham Street and Pratt Street	Roadside	51.3
HS2-000020BMN	Camden Council	Junction of Delancey Street and Albert Street	Roadside	36.9
HS2-000020BMQ	Camden Council	Junction of Parkway and Delancey Street	Roadside	44.8
HS2-000020BMR	Camden Council	Junction of Oval Road and Jamestown Road	Background	31.8
HS2-000020BMS	Camden Council	Junction of Chalk Farm Road and Castlehaven Road	Roadside	46.9
HS2-000020BMT	Camden Council	Junction of Camden Road and Camden Street	Kerbside	44.3
HS2-000020BMU	Camden Council	Junction of Southampton Road and Fleet Road	Roadside	37.5
HS2-000020BMV	Camden Council	Primrose Hill Road	Roadside	33.7

Site ID	Local authority	Site location	Site location type	2019 annual mean NO ₂ concentration, annualised and bias adjusted (µg/m ³)
HS2-000020BMW	Camden Council	Junction of Finchley Road and Hilgrove Road	Roadside	47.4
HS2-000020BMX	Westminster City Council	Sign post by roundabout on A5205	Roadside	43.0
HS2-000020BMY	Westminster City Council	Lamp post between Blomfield Road and Edgware Road	Roadside	49.4
HS2-000020BMZ	Camden Council	Junction of Finchley Road and Hendon Way	Roadside	75.1
HS2-000020BN0	Westminster City Council	Lamp post on Ladbroke Grove	Roadside	48.7
HS2-000020BN1	Kensington and Chelsea Council	Sign post on St Ann's Villas	Roadside	42.6
HS2-000020BN2	Hammersmith and Fulham Council	Lamp post on Du Cane Road	Roadside	44.8
HS2-000020BN3	Brent Council	Sign post on High Street Harlesden	Roadside	50.2
HS2-000020BN4	Hammersmith and Fulham Council	End of cycle lane sign on Old Oak Road	Roadside	44.0
HS2-000020BN5	Ealing Council	Sign post on Victoria Road	Roadside	48.7
HS2-000020BN7	Ealing Council	The Approach street sign	Roadside	52.4
HS2-000020BNA	Camden Council	Junction of Regent's Park Road and Rothwell Street	Roadside	31.4
HS2-000020BNB	Camden Council	Junction of Gloucester Gate Bridge and Park Village East	Roadside	33.4
HS2-000020BNC	Camden Council	Junction of Outer Circle and Gloucester Gate	Background	25.6
HS2-000020BND	Westminster City Council	Outer Circle Regent's Park	Kerbside	31.8
HS2-000020BNG	Brent Council	Lamp post on Donnington Road	Roadside	38.0
HS2-000020BNH	Camden Council	Junction of Parkway and Albert Street	Kerbside	34.5
HS2-000020BNJ	Westminster City Council	Light post on Park Road	Roadside	47.6
HS2-000020BNL	Westminster City Council	Lamp post on Penfold Street	Background	31.8
HS2-000020BNN	Camden Council	Lincoln's Inn Fields	Background	31.3
HS2-000020BNQ	Camden Council	Camley Street	Background	29.6
HS2-000020BNR	Hammersmith and Fulham Council	Lamp posts in Shepherd's Bush Common	Background	34.2
HS2-000020BNS	Brent Council	Lamp post on Tower Road by Willesden Jewish Cemetery	Background	25.3
HS2-000020BNT	Hillingdon Council	Lamp post on Pembroke Road	Background	23.4
HS2-000020BNU	Hillingdon Council	Cowley Road sign post at junction with Hillingdon Road	Roadside	41.1
HS2-000020BNV	Hillingdon Council	High Street sign post at junction with Pembroke Road	Roadside	37.7

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Site ID	Local authority	Site location	Site location type	2019 annual mean NO ₂ concentration, annualised and bias adjusted (µg/m ³)
HS2-000020BNW	Hillingdon Council	Signpost on A4020 Uxbridge Road at junction with Long Lane	Roadside	40.9
HS2-000020BNX	Hammersmith and Fulham Council	Signpost on A402 Goldhawk Road	Roadside	39.5
HS2-000020BNY	Camden Council	Junction of Mill Lane and Hillfield Road	Roadside	39.3
HS2-000020BNZ	Camden Council	Mansfield Road	Roadside	31.7
HS2-000020BP0	Camden Council	Junction of Camden Road and Torriano Avenue	Roadside	50.7
HS2-000020BP1	Westminster City Council	Lamp post on Brook Street	Roadside	54.0
HS2-000020BP2	Camden Council	Junction of Grays Inn Road and Holborn	Roadside	43.8
HS2-000020BP3	Westminster City Council	Triplicate site next to the Marylebone Road kerbside automatic monitoring stations	Kerbside	58.3
HS2-000020BP4	Camden Council	Triplicate site on Finchley Road next to Swiss Cottage kerbside automatic monitoring station	Kerbside	44.2
HS2-000020BP5	Camden Council	Triplicate site next to the Euston Road roadside automatic monitoring stations	Roadside	66.2
HS2-000020BP6	Ealing Council	Triplicate site next to the Ealing, Western Avenue Acton roadside automatic monitoring station	Roadside	50.6
HS2-000020BP7	Ealing Council	Triplicate site next to the Ealing, Hangar Lane Gyrotory roadside automatic monitoring station	Roadside	63.1
HS2-000020BP8	Hillingdon Council	Triplicate site at South Ruislip roadside automatic monitoring station	Roadside	36.4
HS2-000020BP9	Camden Council	Triplicate site in Russell Square next to Bloomsbury urban background automatic monitoring station	Background	32.5
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	26.2
HS2-000020BPB	Camden Council	Camden High Street	Roadside	60.1
HS2-000020BPC	Camden Council	Castlehaven Road	Background	32.1
HS2-000020BPD	Camden Council	Prince of Wales Road	Roadside	30.0
HS2-000020BPE	Camden Council	Haverstock Hill	Roadside	42.2
HS2-000020BPF	Camden Council	Junction of Primrose Gardens and England's Lane	Background	31.8
HS2-000020BPG	Westminster City Council	Lamp post on St John's Wood Street	Roadside	38.5

Site ID	Local authority	Site location	Site location type	2019 annual mean NO ₂ concentration, annualised and bias adjusted (µg/m ³)
HS2-000020BPH	Westminster City Council	Lamp post St John's Wood Terrace	Roadside	39.5
HS2-000020BPK	Hillingdon Council	Lamp post in crescent off Swakeleys Road	Roadside	34.9
HS2-000020BPL	Hillingdon Council	Warren Road sign post on corner of Swakeleys Road and Warren Road	Roadside	37.6
HS2-000020BPM	Brent Council	Lamp post along Gorefield Place near block of flats	Background	27.2
HS2-000020BPN	Hillingdon Council	Lamp post on B467	Roadside	31.0
HS2-000020BPO	Kensington and Chelsea Council	Lamp post off Silchester Road	Roadside	36.7
HS2-000020BPP	Hammersmith and Fulham Council	Sign post on A219 Scrubs Lane, South of Harrow Road	Roadside	46.5
HS2-000020BPR	Kensington and Chelsea Council	Lamp post at junction of Crowthorne Road and Bramley Road	Roadside	41.0
HS2-000020BPS	Kensington and Chelsea Council	Lamp post by fence on B450 Ladbrooke 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	47.0
HS2-000020BPU	Camden Council	Junction of Gower Street and Grafton Way	Roadside	47.6
HS2-000020BPW	Camden Council	Junction of Delancey Street and Arlington Road	Roadside	40.2
HS2-000020BPX	Camden Council	Netley Street	Background	33.2
HS2-000020BPY	Camden Council	Stanhope Street	Background	28.9
HS2-000020BPZ	Camden Council	Albany Street	Roadside	38.5
HS2-000020BQ0	Camden Council	Werrington Street	Background	29.4
HS2-000020BQ1	Camden Council	Polygon Road	Background	31.6
HS2-000020BQ2	Camden Council	Alexandra Place	Background	27.6
HS2-000020BQ3	Camden Council	Harrington Square	Kerbside	40.6
HS2-000020BQ4	Camden Council	Junction of North Gower Street and Starcross Street	Background	33.2
HS2-000020BQ5	Camden Council	Adelaide Road	Roadside	37.6
HS2-000020BQ6	Camden Council	Mornington Terrace	Background	28.9
HS2-000020BQ7	Camden Council	Arlington Road	Background	28.9
HS2-000020BQ8	Camden Council	Clarkson Row	Background	28.9
HS2-000020BQ9	Camden Council	Park Village East	Background	27.1
HS2-000020BQA	Camden Council	Eversholt Street	Kerbside	45.6
HS2-000020BQB	Camden Council	Junction of Harrington Street and Varndell Street	Background	29.0

Site ID	Local authority	Site location	Site location type	2019 annual mean NO ₂ concentration, annualised and bias adjusted (µg/m ³)
HS2-000020BQC	Camden Council	Junction of Robert Street and Hampstead Road	Kerbside	36.3
HS2-000020BQD	Camden Council	Drummond Crescent	Background	35.3
HS2-000020BQE	Hammersmith and Fulham Council	Lamp post next to No 11 Wulfstan Street	Background	28.6
HS2-000020BQF	Ealing Council	Conway Drive sign post	Roadside	53.3
HS2-000020BQG	Ealing Council	Lamp post outside No 1. Wells House Road on Old Oak Common Lane	Roadside	48.9
HS2-000020BQH	Hillingdon Council	Lamp post on High Road Ickenham	Roadside	38.1
HS2-000020BQJ	Camden Council	Grafton Way	Background	51.3
HS2-000020BQL	Camden Council	Delancey Street	Roadside	44.8
HS2-000020BQN	Hillingdon Council	Lamp post on Park Road	Roadside	44.5
HS2-000020BQP	Hillingdon Council	Sign post on Long Lane	Roadside	40.9
HS2-000020BQQ	Kensington and Chelsea Council	Lamp post along Ladbroke Grove, near shops and bus stop at Trevorton Road junction	Kerbside	44.3
HS2-000020BQR	Camden Council	Lamp post on Park Village East	Background	29.3
HS2-000020BQS	Camden Council	Opposite Maria fidelis school on Phoenix Road	Background	30.9
HS2-000020BQT	Camden Council	Drummond Street	Background	35.7
HS2-000020BQU	Westminster City Council	Lamp post outside Edgware Road Station	Kerbside	61.6
HS2-000020BQV	Kensington and Chelsea Council	Lamp post on St Ann's Street	Kerbside	35.0

Notes:

Exceedances of the NO₂ annual mean air quality standard of 40 µg/m³ are shown in bold.

Table 11: Annual mean Phase 2a NO₂ monitoring results for 2019

Site ID	Local authority	Site location	Site location type	2019 annual mean NO ₂ concentration, annualised and bias adjusted (µg/m ³)
1	Staffordshire	South-west of Stafford (CA2) – Ashflats Lane	Roadside	13.7
2	Staffordshire	South-west of Stafford (CA2) – Ash Rise	Suburban	18.3
3	Staffordshire	South-west of Stafford (CA2) – Barn Bank Lane	Suburban	26.8
4	Staffordshire	South-west of Stafford (CA2) – Southfields Close	Suburban	27.8
5	Staffordshire	South-west of Stafford (CA2) – Devon Way	Suburban	28.0
6	Staffordshire	South-west of Stafford (CA2) – Burton Manor Road E	Roadside	20.2
7	Staffordshire	South-west of Stafford (CA2) – Burton Manor Road W	Kerbside	21.5

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Site ID	Local authority	Site location	Site location type	2019 annual mean NO ₂ concentration, annualised and bias adjusted (µg/m ³)
8	Staffordshire	South-west of Stafford (CA2) – Crinan Grove	Suburban	24.4
9	Newcastle under Lyme	Madeley Heath (CA4) – Newcastle Road	Roadside	27.6
10	Cheshire East Council	Oakhanger (CA5) – Nursery Road	Rural	16.4

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Table 12: Full monthly raw Phase One NO₂ monitoring results for 2019 (prior to annualisation and bias adjustment)

Site ID	Local authority	Site location	Site location type	NO ₂ concentration (µg/m ³)													No. of months of data
				Jan19	Feb10	Mar19	Apr19	May19	Jun19	Jul19	Aug19	Sep19	Oct19	Nov19	Dec19	Mean	
HS2-000020BM5	Camden Council	Junction of St Chad's Street and Grays Inn Road	Roadside	58	64	46	53	49	43	46	39	46	44	49	42	48	12
HS2-000020BM6	Camden Council	Brunswick Square	Roadside	51	63	49	42	35	36	39	38	39	33	45	41	43	12
HS2-000020BM7	Camden Council	Chalton Street	Roadside	63	83	66	72	NA	NA	NA	NA	52	NA	59	59	65	7
HS2-000020BM8	Camden Council	Junction of Euston Square and Grafton Place	Roadside	63	72	66	75	61	53	52	59	60	45	59	48	59	12
HS2-000020BM9	Camden Council	Junction of Endsleigh Gardens and Upper Woburn Place	Roadside	47	63	56	59	56	48	49	46	49	43	56	50	52	12
HS2-000020BMA	Camden Council	Junction of Euston Road and Gower Street	Roadside	51	76	63	56	46	52	50	NA	54	45	57	46	54	11
HS2-000020BMB	Camden Council	Whitfield Street	Background	49	58	43	48	33	33	33	36	37	42	66	42	43	12
HS2-000020BMC	Camden Council	Hampstead Road	Roadside	53	84	71	74	62	61	61	70	65	61	72	45	65	12
HS2-000020BMD	Westminster City Council	Lamp post on Park Crescent Road	Roadside	61	69	70	78	67	64	66	NA	60	52	62	47	63	11
HS2-000020BME	Westminster City Council	Lamp post in between A501 and A4201	Roadside	NA	101	90	89	73	78	86	69	83	67	79	NA	81	10
HS2-000020BMF	Camden Council	Junction of Polygon Road and Ossulston Street	Background	39	47	NA	40	27	29	26	27	32	32	41	27	33	11
HS2-000020BMH	Camden Council	Nash Street	Background	43	51	35	37	30	28	29	33	35	34	44	34	36	12

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Site ID	Local authority	Site location	Site location type	NO ₂ concentration (µg/m ³)													No. of months of data
				Jan19	Feb10	Mar19	Apr19	May19	Jun19	Jul19	Aug19	Sep19	Oct19	Nov19	Dec19	Mean	
HS2-000020BMJ	Camden Council	Junction on Robert Street and Stanhope Street	Background	39	43	37	30	28	31	27	31	38	37	46	31	35	12
HS2-000020BMK	Camden Council	Junction of Plender Street and Bayham Street	Roadside	66	68	55	50	39	40	44	47	51	42	57	51	51	12
HS2-000020BML	Camden Council	Junction of Arlington Road and Mornington Crescent	Background	47	44	38	41	26	27	29	30	36	32	34	39	35	12
HS2-000020BMM	Camden Council	Junction of Bayham Street and Pratt Street	Roadside	52	75	62	47	49	47	52	57	56	53	53	46	54	12
HS2-000020BMN	Camden Council	Junction of Delancey Street and Albert Street	Roadside	43	53	43	40	36	33	34	37	37	32	44	35	39	12
HS2-000020BMQ	Camden Council	Junction of Parkway and Delancey Street	Roadside	50	57	43	58	45	46	44	41	47	46	51	38	47	12
HS2-000020BMR	Camden Council	Junction of Oval Road and Jamestown Road	Background	44	49	41	41	30	NA	28	30	35	27	46	NA	37	10
HS2-000020BMS	Camden Council	Junction of Chalk Farm Road and Castlehaven Road	Roadside	59	52	50	52	47	45	50	45	47	49	53	44	49	12
HS2-000020BMT	Camden Council	Junction of Camden Road and Camden Street	Kerbside	57	57	55	55	46	43	45	42	50	46	55	51	50	12
HS2-000020BMU	Camden Council	Junction of Southampton Road and Fleet Road	Roadside	47	51	39	43	28	NA	34	36	41	35	46	35	40	11
HS2-000020BMV	Camden Council	Primrose Hill Road	Roadside	46	45	38	NA	29	22	30	32	34	34	44	36	36	11
HS2-000020BMW	Camden Council	Junction of Finchley Road and Hilgrove Road	Roadside	61	59	55	60	47	50	NA	NA	47	NA	53	NA	54	8

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				Jan19	Feb10	Mar19	Apr19	May19	Jun19	Jul19	Aug19	Sep19	Oct19	Nov19	Dec19	Mean	
HS2-000020BMX	Westminster City Council	Sign post by roundabout on A5205	Roadside	49	56	52	46	43	42	37	43	43	41	46	46	45	12
HS2-000020BMY	Westminster City Council	Lamp post between Blomfield Road and Edgware Road	Roadside	64	63	60	49	45	44	47	48	46	44	68	49	52	12
HS2-000020BMZ	Camden Council	Junction of Finchley Road and Hendon Way	Roadside	87	92	87	90	73	74	75	74	74	73	87	66	79	12
HS2-000020BNO	Westminster City Council	Lamp post on Ladbroke Grove	Roadside	50	57	49	60	45	55	50	41	51	50	65	43	51	12
HS2-000020BN1	Kensington and Chelsea Council	Sign post on St Ann's Villas	Roadside	52	57	45	43	37	42	40	43	45	42	51	41	45	12
HS2-000020BN2	Hammersmith and Fulham Council	Lamp post on Du Cane Road	Roadside	53	61	52	41	39	47	40	48	48	48	52	38	47	12
HS2-000020BN3	Brent Council	Sign post on High Street Harlesden	Roadside	54	75	57	57	51	58	49	54	47	49	48	36	53	12
HS2-000020BN4	Hammersmith and Fulham Council	End of cycle lane sign on Old Oak Road	Roadside	52	56	47	58	43	43	40	39	46	45	49	39	46	12
HS2-000020BN5	Ealing Council	Sign post on Victoria Road	Roadside	63	64	NA	54	38	42	NA	44	48	49	56	55	51	10
HS2-000020BN7	Ealing Council	The Approach street sign	Roadside	75	77	66	47	46	27	49	59	53	53	NA	NA	55	10
HS2-000020BNA	Camden Council	Junction of Regent's Park Road and Rothwell Street	Roadside	45	48	30	27	25	28	27	30	33	28	41	36	33	12

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				Jan19	Feb10	Mar19	Apr19	May19	Jun19	Jul19	Aug19	Sep19	Oct19	Nov19	Dec19	Mean	
HS2-000020BNB	Camden Council	Junction of Gloucester Gate Bridge and Park Village East	Roadside	53	45	41	37	NA	NA	NA	NA	NA	NA	NA	NA	44	4
HS2-000020BNC	Camden Council	Junction of Outer Circle and Gloucester Gate	Background	35	36	24	33	21	25	NA	NA	31	30	39	26	30	10
HS2-000020BND	Westminster City Council	Outer Circle Regent's Park	Kerbside	43	48	38	26	24	33	28	NA	33	35	54	NA	36	10
HS2-000020BNG	Brent Council	Lamp post on Donnington Road	Roadside	56	53	42	36	34	31	32	31	39	41	45	41	40	12
HS2-000020BNH	Camden Council	Junction of Parkway and Albert Street	Kerbside	43	53	37	41	30	34	33	34	39	42	45	37	39	12
HS2-000020BNJ	Westminster City Council	Light post on Park Road	Roadside	64	66	52	48	39	51	47	NA	50	45	50	40	50	11
HS2-000020BNL	Westminster City Council	Lamp post on Penfold Street	Background	43	50	40	36	29	31	29	34	37	36	44	37	37	12
HS2-000020BNN	Camden Council	Lincoln's Inn Fields	Background	50	NA	NA	35	29	NA	27	34	37	37	43	36	37	9
HS2-000020BNQ	Camden Council	Camley Street	Background	50	49	NA	NA	19	29	27	NA	35	32	37	NA	35	8
HS2-000020BNR	Hammersmith and Fulham Council	Lamp posts in Shepherd's Bush Common	Background	52	50	42	43	33	35	31	37	38	38	47	35	40	12
HS2-000020BNS	Brent Council	Lamp post on Tower Road by Willesden Jewish Cemetery	Background	40	36	29	31	22	24	20	23	27	34	39	NA	30	11
HS2-000020BNT	Hillingdon Council	Lamp post on Pembroke Road	Background	34	41	28	26	20	23	17	22	25	27	37	27	27	12

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				Jan19	Feb10	Mar19	Apr19	May19	Jun19	Jul19	Aug19	Sep19	Oct19	Nov19	Dec19	Mean	
HS2-000020BNU	Hillingdon Council	Cowley Road sign post at junction with Hillingdon Road	Roadside	47	49	41	38	39	43	36	46	46	46	48	42	43	12
HS2-000020BNV	Hillingdon Council	High Street sign post at junction with Pembroke Road	Roadside	46	47	38	45	27	39	34	35	37	40	49	NA	40	11
HS2-000020BNW	Hillingdon Council	Signpost on A4020 Uxbridge Road at junction with Long Lane	Roadside	54	47	41	50	38	41	36	32	42	42	56	37	43	12
HS2-000020BNX	Hammersmith and Fulham Council	Signpost on A402 Goldhawk Road	Roadside	48	45	36	42	31	39	NA	36	47	53	39	44	42	11
HS2-000020BNY	Camden Council	Junction of Mill Lane and Hillfield Road	Roadside	53	50	44	38	34	36	33	37	42	40	52	39	41	12
HS2-000020BNZ	Camden Council	Mansfield Road	Roadside	24	44	34	30	NA	29	27	32	34	34	42	38	33	11
HS2-000020BP0	Camden Council	Junction of Camden Road and Torriano Avenue	Roadside	52	70	56	54	46	54	45	47	63	45	60	50	53	12
HS2-000020BP1	Westminster City Council	Lamp post on Brook Street	Roadside	67	62	58	54	NA	53	45	42	82	52	57	54	57	11
HS2-000020BP2	Camden Council	Junction of Grays Inn Road and Holborn	Roadside	65	52	49	48	43	43	41	38	51	41	48	36	46	12
HS2-000020BP3	Westminster City Council	Triplicate site next to the Marylebone Road kerbside automatic monitoring stations	Kerbside	73	79	73	62	56	65	62	62	68	63	64	67	66	12

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				Jan19	Feb10	Mar19	Apr19	May19	Jun19	Jul19	Aug19	Sep19	Oct19	Nov19	Dec19	Mean	
HS2-000020BP4	Camden Council	Triplicate site on Finchley Road next to Swiss Cottage kerbside automatic monitoring station	Kerbside	64	NA	NA	NA	46	53	45	NA	56	49	59	16	48	8
HS2-000020BP5	Camden Council	Triplicate site next to the Euston Road roadside automatic monitoring stations	Roadside	NA	81	69	78	63	77	61	66	78	69	69	58	70	11
HS2-000020BP6	Ealing Council	Triplicate site next to the Ealing, Western Avenue Acton roadside automatic monitoring station	Roadside	68	64	54	45	42	55	45	51	56	53	57	51	53	12
HS2-000020BP7	Ealing Council	Triplicate site next to the Ealing, Hangar Lane Gyrotary roadside automatic monitoring station	Roadside	83	80	74	49	56	68	63	73	67	66	59	60	67	12
HS2-000020BP8	Hillingdon Council	Triplicate site at South Ruislip roadside automatic monitoring station	Roadside	46	44	34	36	29	37	NA	NA	39	35	47	36	38	10
HS2-000020BP9	Camden Council	Triplicate site in Russell Square next to Bloomsbury urban background automatic monitoring station	Background	55	47	38	38	36	32	30	26	36	37	42	40	38	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	43	43	31	27	25	22	19	24	27	31	42	35	31	12

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				Jan19	Feb10	Mar19	Apr19	May19	Jun19	Jul19	Aug19	Sep19	Oct19	Nov19	Dec19	Mean	
HS2-000020BPB	Camden Council	Camden High Street	Roadside	65	81	75	58	63	61	57	60	58	56	69	59	63	12
HS2-000020BPC	Camden Council	Castlehaven Road	Background	45	47	40	33	31	32	28	30	37	36	47	44	38	12
HS2-000020BPD	Camden Council	Prince of Wales Road	Roadside	35	43	37	28	28	25	23	24	30	32	41	35	32	12
HS2-000020BPE	Camden Council	Haverstock Hill	Roadside	54	62	53	37	NA	37	36	38	38	40	44	49	44	11
HS2-000020BPF	Camden Council	Junction of Primrose Gardens and England's Lane	Background	44	52	41	35	32	31	29	31	35	38	42	38	37	12
HS2-000020BPG	Westminster City Council	Lamp post on St John's Wood Street	Roadside	50	57	42	43	37	34	29	33	38	39	49	37	41	12
HS2-000020BPH	Westminster City Council	Lamp post St John's Wood Terrace	Roadside	52	58	44	38	35	32	36	37	40	43	45	39	42	12
HS2-000020BPK	Hillingdon Council	Lamp post in crescent off Swakeleys Road	Roadside	45	48	39	31	33	28	34	33	35	34	47	34	37	12
HS2-000020BPL	Hillingdon Council	Warren Road sign post on corner of Swakeleys Road and Warren Road	Roadside	43	61	NA	30	37	36	38	40	38	35	40	NA	40	10
HS2-000020BPM	Brent Council	Lamp post along Gorefield Place near block of flats	Background	45	45	34	28	24	23	23	26	29	32	39	35	32	12
HS2-000020BPN	Hillingdon Council	Lamp post on B467	Roadside	39	NA	36	31	32	28	26	27	31	34	40	37	33	11
HS2-000020BPO	Kensington and Chelsea Council	Lamp post off Silchester Road	Roadside	51	44	38	40	NA	34	31	31	32	38	49	38	39	11

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				Jan19	Feb10	Mar19	Apr19	May19	Jun19	Jul19	Aug19	Sep19	Oct19	Nov19	Dec19	Mean	
HS2-000020BPP	Hammersmith and Fulham Council	Sign post on A219 Scrubs Lane, South of Harrow Road	Roadside	60	64	46	44	41	43	45	49	54	48	42	51	49	12
HS2-000020BPR	Kensington and Chelsea Council	Lamp post at junction of Crowthorne Road and Bramley Road	Roadside	51	59	46	43	39	38	38	41	38	43	41	42	43	12
HS2-000020BPS	Kensington and Chelsea Council	Lamp post by fence on B450 Ladbroke Grove, south of A404 Harrow Road	Roadside	49	64	48	54	41	45	45	43	46	52	57	34	48	12
HS2-000020BPT	Hammersmith and Fulham Council	Controlled Zone/Zone Ends road sign on A219 Scrubs Lane, north of Hythe Road	Roadside	49	65	53	55	42	44	44	44	47	51	57	43	50	12
HS2-000020BPU	Camden Council	Junction of Gower Street and Grafton Way	Roadside	54	60	56	50	NA	42	51	43	48	41	57	50	50	11
HS2-000020BPW	Camden Council	Junction of Delancey Street and Arlington Road	Roadside	48	51	44	44	40	39	38	36	42	40	47	40	42	12
HS2-000020BPX	Camden Council	Netley Street	Background	43	50	40	48	32	36	29	29	38	36	47	NA	39	11
HS2-000020BPY	Camden Council	Stanhope Street	Background	34	46	32	36	24	24	NA	24	32	36	44	39	34	11
HS2-000020BPZ	Camden Council	Albany Street	Roadside	44	57	42	43	34	34	32	31	43	38	48	40	41	12
HS2-000020BQ0	Camden Council	Werrington Street	Background	43	NA	39	39	26	28	25	27	35	35	44	37	34	11
HS2-000020BQ1	Camden Council	Polygon Road	Background	41	46	37	34	NA	28	NA	28	33	NA	44	43	37	9
HS2-000020BQ2	Camden Council	Alexandra Place	Background	42	NA	30	39	25	NA	24	26	31	35	39	NA	32	9

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				Jan19	Feb10	Mar19	Apr19	May19	Jun19	Jul19	Aug19	Sep19	Oct19	Nov19	Dec19	Mean	
HS2-000020BQ3	Camden Council	Harrington Square	Kerbside	46	60	45	48	40	42	40	38	45	48	55	46	46	12
HS2-000020BQ4	Camden Council	Junction of North Gower Street and Starcross Street	Background	51	54	41	44	23	33	30	30	37	37	45	43	39	12
HS2-000020BQ5	Camden Council	Adelaide Road	Roadside	50	54	43	41	32	30	35	34	33	39	43	41	40	12
HS2-000020BQ6	Camden Council	Mornington Terrace	Background	45	46	35	34	28	27	25	27	31	34	37	38	34	12
HS2-000020BQ7	Camden Council	Arlington Road	Background	43	40	37	33	28	24	26	28	NA	28	45	38	34	11
HS2-000020BQ8	Camden Council	Clarkson Row	Background	42	45	34	36	26	27	24	27	32	36	39	37	34	12
HS2-000020BQ9	Camden Council	Park Village East	Background	40	44	NA	NA	24	24	22	26	33	31	43	32	32	10
HS2-000020BQA	Camden Council	Eversholt Street	Kerbside	57	67	56	49	46	NA	44	42	50	53	NA	53	52	10
HS2-000020BQB	Camden Council	Junction of Harrington Street and Varndell Street	Background	42	43	32	40	26	26	24	25	33	37	45	NA	34	11
HS2-000020BQC	Camden Council	Junction of Robert Street and Hampstead Road	Kerbside	49	48	42	56	33	37	34	30	37	38	49	42	41	12
HS2-000020BQD	Camden Council	Drummond Crescent	Background	50	51	45	44	33	34	33	38	41	39	47	43	41	12
HS2-000020BQE	Hammersmith and Fulham Council	Lamp post next to No 11 Wulfstan Street	Background	NA	43	32	35	28	29	28	31	32	38	39	34	33	11
HS2-000020BQF	Ealing Council	Conway Drive sign post	Roadside	69	68	61	59	50	50	48	49	50	58	59	52	56	12

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Site ID	Local authority	Site location	Site location type	NO ₂ concentration (µg/m ³)													No. of months of data
				Jan19	Feb10	Mar19	Apr19	May19	Jun19	Jul19	Aug19	Sep19	Oct19	Nov19	Dec19	Mean	
HS2-000020BQG	Ealing Council	Lamp post outside No 1. Wells House Road on Old Oak Common Lane	Roadside	69	63	60	49	42	50	41	41	47	51	55	52	52	12
HS2-000020BQH	Hillingdon Council	Lamp post on High Road Ickenham	Roadside	51	49	42	38	35	31	35	36	38	43	44	NA	40	11
HS2-000020BQJ	Camden Council	Grafton Way	Background	64	70	59	56	51	62	57	53	64	58	66	61	60	12
HS2-000020BQL	Camden Council	Delancey Street	Roadside	58	57	47	51	45	39	43	35	50	46	55	41	47	12
HS2-000020BQN	Hillingdon Council	Lamp post on Park Road	Roadside	45	54	54	52	40	48	41	37	47	49	55	41	47	12
HS2-000020BQP	Hillingdon Council	Sign post on Long Lane	Roadside	43	47	43	48	38	45	38	34	44	44	46	47	43	12
HS2-000020BQQ	Kensington and Chelsea Council	Lamp post along Ladbrooke Grove, near shops and bus stop at Trevorton Road junction	Kerbside	62	54	52	49	46	49	45	40	50	NA	NA	56	50	10
HS2-000020BQR	Camden Council	Lamp post on Park Village East	Background	46	42	36	34	26	NA	25	24	33	32	47	32	34	11
HS2-000020BQS	Camden Council	Opposite Maria fidelis school on Phoenix Road	Background	43	43	37	41	NA	34	26	27	NA	38	37	NA	36	9
HS2-000020BQT	Camden Council	Drummond Street	Background	52	51	43	47	31	37	31	31	39	44	51	43	42	12
HS2-000020BQU	Westminster City Council	Lamp post outside Edgware Road Station	Kerbside	82	73	76	74	61	66	63	59	75	75	71	65	70	12
HS2-000020BQV	Kensington and Chelsea Council	Lamp post on St Ann's Street	Kerbside	Monitoring did not commence until October 2019									40	NA	NA	40	1

NA - tube missing or erroneous data

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Table 13: Full monthly raw Phase 2a NO₂ monitoring results for 2019 (prior to annualisation and bias adjustment)

Site ID	Local authority	Site location	Site location type	NO ₂ concentration (µg/m ³)												No. of months of data	
				Jan19	Feb10	Mar19	Apr19	May19	Jun19	Jul19	Aug19	Sep19	Oct19	Nov19	Dec19		Mean
1	Staffordshire	South-west of Stafford (CA2) – Ashflats Lane	Roadside	19.1	15.8	8.9	24.5	11.8	10.7	7.9	NA	10.9	14.4	24.6	13.3	14.7	11
2	Staffordshire	South-west of Stafford (CA2) – Ash Rise	Suburban	29.3	29.4	20.2	16.2	15.7	14.2	15	15.2	18.1	17.8	26.9	18	19.7	12
3	Staffordshire	South-west of Stafford (CA2) – Barn Bank Lane	Suburban	46.4	46.7	31.6	20.7	23.3	23.1	24.5	25.1	23.2	26.3	NA	25.8	28.8	11
4	Staffordshire	South-west of Stafford (CA2) – Southfields Close	Suburban	40.6	46.1	34.1	21.2	21.7	21.6	26.5	26.2	29.1	28.4	33.6	NA	29.9	11
5	Staffordshire	South-west of Stafford (CA2) – Devon Way	Suburban	39.6	47.3	38.3	22.9	22	21.8	24.4	26	26.8	27.6	37.5	27.5	30.1	12
6	Staffordshire	South-west of Stafford (CA2) – Burton Manor Road E	Roadside	28.9	NA	27.2	19.6	14.8	16.1	18.2	17.7	21.9	21.6	30	22.3	21.7	11
7	Staffordshire	South-west of Stafford (CA2) – Burton Manor Road W	Kerbside	29.1	NA	20.1	39.4	18.5	NA	18.2	11.4	19.8	21.5	33.7	19.3	23.1	10
8	Staffordshire	South-west of Stafford (CA2) – Crinan Grove	Suburban	33.5	39.5	34.1	21.8	19.1	19.4	20	21.5	23.8	26.8	34.2	25	26.6	12
9	Newcastle under Lyme	Madeley Heath (CA4) – Newcastle Road	Roadside	38.9	NA	NA	26.3	NA	22.1	23.6	23.5	27.5	28.6	NA	28.6	27.4	8
10	Cheshire East Council	Oakhanger (CA5) – Nursery Road	Rural	17.8	24.2	11.9	25.2	16.5	15	11.7	9.5	14	20.2	27.8	18	17.7	12

NA - tube missing or erroneous data

Appendix E – Comparison of Phase One 2019 annual mean NO₂ diffusion tube results and the predicted NO₂ annual mean concentrations from the ES

Table 14 presents a comparison of the Phase One 2019 annual mean NO₂ diffusion tube results and the predicted 2012 and 2017 NO₂ annual mean concentrations from the ES for the scenario without the Proposed Scheme in place.

Table 14: Comparison of the Phase One 2019 annual mean NO₂ diffusion tube results and the predicted 2012 and 2017 NO₂ annual mean concentrations from the ES

Site ID	Local authority	Site location	Site purpose	2019 annual mean NO ₂ concentration, annualised and bias adjusted (µg/m ³)	Nearest ES assessed receptor ID	Modelled annual mean NO ₂ 2012 (µg/m ³)	Modelled annual mean NO ₂ 2017 (without scheme, µg/m ³)	Modelled peak annual mean NO ₂ (with scheme, µg/m ³)	Distance of diffusion tube to nearest ES assessed receptor (m)	Difference monitored 2019 vs 2017 without scheme modelled	% difference 2017 without scheme modelled	Difference monitored 2019 vs with-scheme modelled	% diff with scheme modelled vs 2019 monitored
HS2-000020BM5	Camden Council	Junction of St Chad's Street and Grays Inn Road	Predicted significant effect	45.9	1-204	86.4	75.6	76.1	5	-29.7	-39%	-30.2	-40%
HS2-000020BM6	Camden Council	Brunswick Square	Predicted significant effect	40.3	1-7	61.1	52.5	52.4	67	-12.2	-23%	-12.1	-23%
HS2-000020BM7	Camden Council	Chalton Street	Predicted significant effect	52.0	1-1	104.8	90.1	91.9	14	-38.1	-42%	-39.9	-43%
HS2-000020BM8	Camden Council	Junction of Euston Square and Grafton Place	Predicted significant effect	56.3	1-178	91.7	81	82.5	29	-24.7	-30%	-26.2	-32%
HS2-000020BM9	Camden Council	Junction of Endsleigh Gardens and Upper Woburn Place	Predicted significant effect	49.1	1-47	93.6	82.3	83.3	16	-33.2	-40%	-34.2	-41%
HS2-000020BMA	Camden Council	Junction of Euston Road and Gower Street	Predicted significant effect	51.4	1-170	99.3	80	82.1	0	-28.6	-36%	-30.7	-37%

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Site ID	Local authority	Site location	Site purpose	2019 annual mean NO ₂ concentration, annualised and bias adjusted (µg/m ³)	Nearest ES assessed receptor ID	Modelled annual mean NO ₂ 2012 (µg/m ³)	Modelled annual mean NO ₂ 2017 (without scheme, µg/m ³)	Modelled peak annual mean NO ₂ (with scheme, µg/m ³)	Distance of diffusion tube to nearest ES assessed receptor (m)	Difference monitored 2019 vs 2017 without scheme modelled	% difference 2017 without scheme modelled	Difference monitored 2019 vs with-scheme modelled	% diff with scheme modelled vs 2019 monitored
HS2-000020BMB	Camden Council	Whitfield Street	Predicted significant effect	37.2	1-287	63.6	53.4	53.8	11	-16.2	-30%	-16.6	-31%
HS2-000020BMC	Camden Council	Hampstead Road	Predicted significant effect	61.5	1-165	83.1	66.6	67.5	9	-5.1	-8%	-6.0	-9%
HS2-000020BMD	Westminster City Council	Lamp post on Park Crescent Road	Predicted significant effect	60.0	1-42	89.6	75.7	76.4	49	-15.7	-21%	-16.4	-21%
HS2-000020BME	Westminster City Council	Lamp post in between A501 and A4201	Predicted significant effect	77.2	1-279	86.1	72.8	73.4	17	4.4	6%	3.9	5%
HS2-000020BMF	Camden Council	Junction of Polygon Road and Ossulston Street	Predicted significant effect	28.6	1-79	50.4	43.4	43.7	0	-14.8	-34%	-15.1	-35%
HS2-000020BMH	Camden Council	Nash Street	Predicted significant effect	30.9	1-261	54.5	46.4	46.8	7	-15.5	-33%	-15.9	-34%
HS2-000020BMJ	Camden Council	Junction on Robert Street and Stanhope Street	Predicted significant effect	29.8	1-257	58.6	50.1	51.0	24	-20.3	-41%	-21.2	-42%
HS2-000020BMK	Camden Council	Junction of Plender Street and Bayham Street	Predicted significant effect	48.2	1-298	61.4	53.5	53.5	9	-5.3	-10%	-5.3	-10%
HS2-000020BML	Camden Council	Junction of Arlington Road and Mornington Crescent	Predicted significant effect	30.1	1-9	52	45.8	44.3	2	-15.7	-34%	-14.2	-32%
HS2-000020BMM	Camden Council	Junction of Bayham Street and Pratt Street	Predicted significant effect	51.3	2-72	69.4	57.2	57.0	6	-5.9	-10%	-5.7	-10%

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HS2-000020BMN	Camden Council	Junction of Delancey Street and Albert Street	Predicted significant effect	36.9	1-246	55.8	46.7	48.7	4	-9.8	-21%	-11.8	-24%
HS2-000020BMQ	Camden Council	Junction of Parkway and Delancey Street	Predicted significant effect	44.8	2-103	70.5	58.4	56.9	22	-13.6	-23%	-12.1	-21%
HS2-000020BMR	Camden Council	Junction of Oval Road and Jamestown Road	Predicted significant effect	31.8	2-98	45.5	39.1	39.3	7	-7.3	-19%	-7.5	-19%
HS2-000020BMS	Camden Council	Junction of Chalk Farm Road and Castlehaven Road	Predicted significant effect	46.9	2-8	64.3	53.2	53.7	5	-6.3	-12%	-6.8	-13%
HS2-000020BMT	Camden Council	Junction of Camden Road and Camden Street	Predicted significant effect	44.3	2-38	79.3	63.4	62.3	21	-19.1	-30%	-18.0	-29%
HS2-000020BMU	Camden Council	Junction of Southampton Road and Fleet Road	Predicted significant effect	37.5	3-153	52.4	46.3	46.3	14	-8.8	-19%	-8.8	-19%
HS2-000020BMV	Camden Council	Primrose Hill Road	Predicted significant effect	33.7	3-213	55.2	46.7	45.1	32	-13.0	-28%	-11.4	-25%
HS2-000020BMW	Camden Council	Junction of Finchley Road and Hilgrove Road	Predicted significant effect	47.4	3-60	64.9	53.6	53.8	8	-6.2	-12%	-6.4	-12%
HS2-000020BMX	Westminster City Council	Sign post by roundabout on A5205	Predicted significant effect	43.0	1-141	65.1	55.7	56.1	24	-12.7	-23%	-13.1	-23%
HS2-000020BMY	Westminster City Council	Lamp post between Blomfield Road and Edgware Road	Predicted significant effect	49.4	4-65	64.2	54.1	53.9	13	-4.7	-9%	-4.5	-8%

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Site ID	Local authority	Site location	Site purpose	2019 annual mean NO ₂ concentration, annualised and bias adjusted (µg/m ³)	Nearest ES assessed receptor ID	Modelled annual mean NO ₂ 2012 (µg/m ³)	Modelled annual mean NO ₂ 2017 (without scheme, µg/m ³)	Modelled peak annual mean NO ₂ (with scheme, µg/m ³)	Distance of diffusion tube to nearest ES assessed receptor (m)	Difference monitored 2019 vs 2017 without scheme modelled	% difference 2017 without scheme modelled	Difference monitored 2019 vs with-scheme modelled	% diff with scheme modelled vs 2019 monitored
HS2-000020BMZ	Camden Council	Junction of Finchley Road and Hendon Way	Predicted significant effect	75.1	3-96	70.4	56.4	56.4	8	18.7	33%	18.7	33%
HS2-000020BN0	Westminster City Council	Lamp post on Ladbroke Grove	Predicted significant effect	48.7	4-225	77.1	66.2	66.3	14	-17.5	-26%	-17.6	-27%
HS2-000020BN1	Kensington and Chelsea Council	Sign post on St Ann's Villas	Predicted significant effect	42.6	4-193	62.3	53.2	53.3	4	-10.6	-20%	-10.7	-20%
HS2-000020BN2	Hammersmith and Fulham Council	Lamp post on Du Cane Road	Predicted significant effect	44.8	4-204	72.1	61.1	61.1	12	-16.3	-27%	-16.3	-27%
HS2-000020BN3	Brent Council	Sign post on High Street Harlesden	Predicted significant effect	50.2	4-209	68.7	58.5	58.6	47	-8.3	-14%	-8.3	-14%
HS2-000020BN4	Hammersmith and Fulham Council	End of cycle lane sign on Old Oak Road	Predicted significant effect	44.0	4-155	88.7	76	76.1	18	-32.0	-42%	-32.1	-42%
HS2-000020BN5	Ealing Council	Sign post on Victoria Road	Predicted significant effect	48.7	4-12	64.6	52.6	56.0	3	-3.9	-7%	-7.3	-13%
HS2-000020BN7	Ealing Council	The Approach street sign	Predicted significant effect	52.4	4-152	83.3	69.6	69.6	20	-17.2	-25%	-17.2	-25%
HS2-000020BNA	Camden Council	Junction of Regent's Park Road and Rothwell Street	Predicted significant effect	31.4	3-193	47.4	39.4	38.2	2	-8.0	-20%	-6.8	-18%
HS2-000020BNB	Camden Council	Junction of Gloucester Gate Bridge and Park Village East	Predicted significant effect	33.4	1-284	53.4	45.5	43.0	19	-12.1	-27%	-9.6	-22%

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HS2-000020BNC	Camden Council	Junction of Outer Circle and Gloucester Gate	Predicted significant effect	25.6	1-70	49.4	42.7	43.1	22	-17.1	-40%	-17.5	-41%
HS2-000020BND	Westminster City Council	Outer Circle Regent's Park	Predicted significant effect	31.8	1-281	61.1	52	52.4	15	-20.2	-39%	-20.6	-39%
HS2-000020BNG	Brent Council	Lamp post on Donnington Road	Predicted significant effect	38.0	4-120	53.7	46	46.1	14	-8.0	-17%	-8.1	-18%
HS2-000020BNH	Camden Council	Junction of Parkway and Albert Street	Predicted significant effect	34.5	2-85	61.6	51.3	51.0	18	-16.8	-33%	-16.5	-32%
HS2-000020BNJ	Westminster City Council	Light post on Park Road	Predicted significant effect	47.6	1-242	69.7	57.4	58.2	10	-9.8	-17%	-10.6	-18%
HS2-000020BNL	Westminster City Council	Lamp post on Penfold Street	Background not affected by scheme	31.8	No assessed receptor location nearby								
HS2-000020BNN	Camden Council	Lincoln's Inn Fields	Background not affected by scheme	31.3	No assessed receptor location nearby								
HS2-000020BNQ	Camden Council	Camley Street	Background not affected by scheme	29.6	No assessed receptor location nearby								
HS2-000020BNR	Hammersmith and Fulham Council	Lamp posts in Shepherd's Bush Common	Background not affected by scheme	34.2	No assessed receptor location nearby								
HS2-000020BNS	Brent Council	Lamp post on Tower Road by Willesden Jewish Cemetery	Background not affected by scheme	25.3	No assessed receptor location nearby								

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HS2-000020BNT	Hillingdon Council	Lamp post on Pembroke Road	Background not affected by scheme	23.4	No assessed receptor location nearby								
HS2-000020BNU	Hillingdon Council	Cowley Road sign post at junction with Hillingdon Road	Roadside not affected by scheme	41.1	No assessed receptor location nearby								
HS2-000020BNV	Hillingdon Council	High Street sign post at junction with Pembroke Road	Roadside not affected by scheme	37.7	No assessed receptor location nearby								
HS2-000020BNW	Hillingdon Council	Signpost on A4020 Uxbridge Road at junction with Long Lane	Roadside not affected by scheme	40.9	No assessed receptor location nearby								
HS2-000020BNX	Hammersmith and Fulham Council	Signpost on A402 Goldhawk Road	Roadside not affected by scheme	39.5	No assessed receptor location nearby								
HS2-000020BNY	Camden Council	Junction of Mill Lane and Hillfield Road	Roadside not affected by scheme	39.3	No assessed receptor location nearby								
HS2-000020BNZ	Camden Council	Mansfield Road	Roadside not affected by scheme	31.7	No assessed receptor location nearby								
HS2-000020BP0	Camden Council	Junction of Camden Road and Torriano Avenue	Roadside not affected by scheme	50.7	No assessed receptor location nearby								
HS2-000020BP1	Westminster City Council	Lamp post on Brook Street	Roadside not affected by scheme	54.0	No assessed receptor location nearby								
HS2-000020BP2	Camden Council	Junction of Grays Inn Road and Holborn	Roadside not affected by scheme	43.8	No assessed receptor location nearby								

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HS2-000020BP3	Westminster City Council	Triplicate site next to the Marylebone Road kerbside automatic monitoring stations	Colocation kerbside	58.3	1-293	92	77.3	77.7	33	-19.0	-25%	-19.4	-25%
HS2-000020BP4	Camden Council	Triplicate site on Finchley Road next to Swiss Cottage kerbside automatic monitoring station	Colocation kerbside	44.2	3-64	76.8	60.2	60.0	9	-16.0	-27%	-15.8	-26%
HS2-000020BP5	Camden Council	Triplicate site next to the Euston Road roadside automatic monitoring stations	Colocation roadside	66.2	1-1	104.8	90.1	91.9	32	-23.9	-27%	-25.7	-28%
HS2-000020BP6	Ealing Council	Triplicate site next to the Ealing, Western Avenue Acton roadside automatic monitoring station	Colocation roadside	50.6	5-35	74.3	63.4	63.6	14	-12.8	-20%	-13.0	-20%
HS2-000020BP7	Ealing Council	Triplicate site next to the Ealing, Hangar Lane Gyratory roadside automatic monitoring station	Colocation roadside	63.1	5-49	89	76	76.0	102	-12.9	-17%	-12.9	-17%
HS2-000020BP8	Hillingdon Council	Triplicate site at South Ruislip roadside automatic monitoring station	Colocation roadside	36.4	No assessed receptor location nearby								

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HS2-000020BP9	Camden Council	Triplicate site in Russell Square next to Bloomsbury urban background automatic monitoring station	Colocation background	32.5	1-276	66.1	58.6	57.8	90	-26.1	-45%	-25.3	-44%
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	26.2	4-121	59.6	50.8	50.8	84	-24.6	-48%	-24.6	-48%
HS2-000020BPB	Camden Council	Camden High Street	Predicted significant effect	60.1	2-63	62.1	50.7	50.6	68	9.4	19%	9.6	19%
HS2-000020BPC	Camden Council	Castlehaven Road	Predicted significant effect	32.1	2-93	48.8	42.3	42.7	29	-10.2	-24%	-10.6	-25%
HS2-000020BPD	Camden Council	Prince of Wales Road	Predicted significant effect	30.0	No assessed receptor location nearby								
HS2-000020BPE	Camden Council	Haverstock Hill	Predicted significant effect	42.2	3-41	50.5	42.7	42.7	25	-0.5	-1%	-0.5	-1%
HS2-000020BPF	Camden Council	Junction of Primrose Gardens and England's Lane	Predicted significant effect	31.8	3-130	46.3	40.7	40.6	8	-8.9	-22%	-8.8	-22%
HS2-000020BPG	Westminster City Council	Lamp post on St John's Wood Street	Predicted significant effect	38.5	1-48	60.7	53	53.1	66	-14.5	-27%	-14.6	-27%

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HS2-000020BPH	Westminster City Council	Lamp post St John's Wood Terrace	Predicted significant effect	39.5	1-62	61.5	51.5	51.8	8	-12.0	-23%	-12.3	-24%
HS2-000020BPK	Hillingdon Council	Lamp post in crescent off Swakeleys Road	Predicted significant effect	34.9	6-40	48.9	42.7	43.3	23	-7.8	-18%	-8.4	-19%
HS2-000020BPL	Hillingdon Council	Warren Road sign post on corner of Swakeleys Road and Warren Road	Predicted significant effect	37.6	6-31	68.1	59.5	60.6	7	-21.9	-37%	-23.0	-38%
HS2-000020BPM	Brent Council	Lamp post along Gorefield Place near block of flats	Background not affected by scheme	27.2	No assessed receptor location nearby								
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	36.7	4-104	70.2	60.2	60.2	19	-23.5	-39%	-23.5	-39%
HS2-000020BPP	Hammersmith and Fulham Council	Sign post on A219 Scrubs Lane, South of Harrow Road	Predicted significant effect	46.5	4-209	68.7	58.5	58.6	57	-12.0	-21%	-12.1	-21%
HS2-000020BPR	Kensington and Chelsea Council	Lamp post at junction of Crowthorne Road and Bramley Road	Predicted significant effect	41.0	4-173	75.2	63.8	63.9	33	-22.8	-36%	-22.9	-36%
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%

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Site ID	Local authority	Site location	Site purpose	2019 annual mean NO ₂ concentration, annualised and bias adjusted (µg/m ³)	Nearest ES assessed receptor ID	Modelled annual mean NO ₂ 2012 (µg/m ³)	Modelled annual mean NO ₂ 2017 (without scheme, µg/m ³)	Modelled peak annual mean NO ₂ (with scheme, µg/m ³)	Distance of diffusion tube to nearest ES assessed receptor (m)	Difference monitored 2019 vs 2017 without scheme modelled	% difference 2017 without scheme modelled	Difference monitored 2019 vs with-scheme modelled	% diff with scheme modelled vs 2019 monitored
HS2-000020BPT	Hammersmith and Fulham Council	Controlled Zone/Zone Ends road sign on A219 Scrubs Lane, north of Hythe Road	Predicted significant effect	47.0	4-206	64.8	55.3	55.4	59	-8.3	-15%	-8.4	-15%
HS2-000020BPU	Camden Council	Junction of Gower Street and Grafton Way	Predicted significant effect	47.6	1-4	76.1	62.1	64.1	4	-14.5	-23%	-16.5	-26%
HS2-000020BPW	Camden Council	Junction of Delancey Street and Arlington Road	Predicted significant effect	40.2	1-58	56.1	46.9	46.7	27	-6.7	-14%	-6.5	-14%
HS2-000020BPX	Camden Council	Netley Street	Predicted significant effect	33.2	1-292	83.2	66.6	67.5	87	-33.4	-50%	-34.3	-51%
HS2-000020BPY	Camden Council	Stanhope Street	Predicted significant effect	28.9	1-254	51.5	43.5	43.6	97	-14.6	-34%	-14.7	-34%
HS2-000020BPZ	Camden Council	Albany Street	Predicted significant effect	38.5	1-283	54.1	46.3	45.7	32	-7.8	-17%	-7.2	-16%
HS2-000020BQ0	Camden Council	Werrington Street	Predicted significant effect	29.4	1-191	56.7	50.1	50.9	82	-20.7	-41%	-21.5	-42%
HS2-000020BQ1	Camden Council	Polygon Road	Predicted significant effect	31.6	1-208	50.2	43.1	43.2	57	-11.5	-27%	-11.6	-27%
HS2-000020BQ2	Camden Council	Alexandra Place	Predicted significant effect	27.6	No assessed receptor location nearby								
HS2-000020BQ3	Camden Council	Harrington Square	Predicted significant effect	40.6	1-134	61.5	52.2	53.5	38	-11.6	-22%	-12.9	-24%

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Site ID	Local authority	Site location	Site purpose	2019 annual mean NO ₂ concentration, annualised and bias adjusted (µg/m ³)	Nearest ES assessed receptor ID	Modelled annual mean NO ₂ 2012 (µg/m ³)	Modelled annual mean NO ₂ 2017 (without scheme, µg/m ³)	Modelled peak annual mean NO ₂ (with scheme, µg/m ³)	Distance of diffusion tube to nearest ES assessed receptor (m)	Difference monitored 2019 vs 2017 without scheme modelled	% difference 2017 without scheme modelled	Difference monitored 2019 vs with-scheme modelled	% diff with scheme modelled vs 2019 monitored
HS2-000020BQ4	Camden Council	Junction of North Gower Street and Starcross Street	Predicted significant effect	33.2	1-166	65.4	54.4	54.2	39	-21.2	-39%	-21.0	-39%
HS2-000020BQ5	Camden Council	Adelaide Road	Predicted significant effect	37.6	3-211	46.2	39.3	39.5	109	-1.7	-4%	-1.9	-5%
HS2-000020BQ6	Camden Council	Mornington Terrace	Predicted significant effect	28.9	1-246	55.8	46.7	48.7	100	-17.8	-38%	-19.8	-41%
HS2-000020BQ7	Camden Council	Arlington Road	Predicted significant effect	28.9	1-198	51.9	44.1	43.2	23	-15.2	-34%	-14.3	-33%
HS2-000020BQ8	Camden Council	Clarkson Row	Predicted significant effect	28.9	1-253	50.9	43.8	43.3	56	-14.9	-34%	-14.4	-33%
HS2-000020BQ9	Camden Council	Park Village East	Predicted significant effect	27.1	No assessed receptor location nearby								
HS2-000020BQA	Camden Council	Eversholt Street	Predicted significant effect	45.6	1-192	57.7	51.2	52.0	13	-5.6	-11%	-6.4	-12%
HS2-000020BQB	Camden Council	Junction of Harrington Street and Vardell Street	Predicted significant effect	29.0	1-322	63.6	50	51.5	5	-21.0	-42%	-22.5	-44%
HS2-000020BQC	Camden Council	Junction of Robert Street and Hampstead Road	Predicted significant effect	36.3	1-71	63.1	53.5	54.8	32	-17.2	-32%	-18.5	-34%
HS2-000020BQD	Camden Council	Drummond Crescent	Predicted significant effect	35.3	1-186	66.7	56.8	57.8	58	-21.5	-38%	-22.5	-39%

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Site ID	Local authority	Site location	Site purpose	2019 annual mean NO ₂ concentration, annualised and bias adjusted (µg/m ³)	Nearest ES assessed receptor ID	Modelled annual mean NO ₂ 2012 (µg/m ³)	Modelled annual mean NO ₂ 2017 (without scheme, µg/m ³)	Modelled peak annual mean NO ₂ (with scheme, µg/m ³)	Distance of diffusion tube to nearest ES assessed receptor (m)	Difference monitored 2019 vs 2017 without scheme modelled	% difference 2017 without scheme modelled	Difference monitored 2019 vs with-scheme modelled	% diff with scheme modelled vs 2019 monitored
HS2-000020BQE	Hammersmith and Fulham Council	Lamp post next to No 11 Wulfstan Street	Predicted significant effect	28.6	4-262	48.1	40.8	40.7	8	-12.2	-30%	-12.1	-30%
HS2-000020BQF	Ealing Council	Conway Drive sign post	Predicted significant effect	53.3	4-55	63.7	55.2	55.3	36	-1.9	-3%	-2.0	-4%
HS2-000020BQG	Ealing Council	Lamp post outside No 1, Wells House Road on Old Oak Common Lane	Predicted significant effect	48.9	4-143	52.6	45.2	45.3	6	3.7	8%	3.6	8%
HS2-000020BQH	Hillingdon Council	Lamp post on High Road Ickenham	Predicted significant effect	38.1	6-73	45.6	39.0	38.8	59	-0.9	-2%	-0.7	-2%
HS2-000020BQJ	Camden Council	Grafton Way	Predicted significant effect	51.3	1-4	76.1	62.1	64.1	109	-10.8	-17%	-12.8	-20%
HS2-000020BQL	Camden Council	Delancey Street	Predicted significant effect	44.8	2-87	62.5	51.4	50.0	19	-6.6	-13%	-5.2	-10%
HS2-000020BQN	Hillingdon Council	Lamp post on Park Road	Predicted significant effect	44.5	6-62	64.5	54.5	53.8	21	-10.0	-18%	-9.3	-17%
HS2-000020BQP	Hillingdon Council	Sign post on Long Lane	Predicted significant effect	40.9	No assessed receptor location nearby								
HS2-000020BQQ	Kensington and Chelsea Council	Lamp post along Ladbroke Grove, near shops and bus stop at Trevorton Road junction	Predicted significant effect	44.3	4-217	61.5	51.7	51.9	16	-7.4	-14%	-7.6	-15%

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HS2-000020BQR	Camden Council	Lamp post on Park Village East	Predicted significant effect	29.3	1-284	53.4	45.5	43.0	28	-16.2	-36%	-13.7	-32%
HS2-000020BQS	Camden Council	Opposite Maria fidelis school on Phoenix Road	Predicted significant effect	30.9	1-269	57.4	51.3	51.7	22	-20.4	-40%	-20.8	-40%
HS2-000020BQT	Camden Council	Drummond Street	Predicted significant effect	35.7	1-169	64	52.6	51.6	13	-16.9	-32%	-15.9	-31%
HS2-000020BQU	Westminster City Council	Lamp post outside Edgware Road Station	Predicted significant effect	61.6	1-25	100.3	86.8	86.6	2	-25.2	-29%	-25.0	-29%
HS2-000020BQV	Kensington and Chelsea Council	Lamp post on St Ann's Street	Predicted significant effect	35.0	4-182	59.5	50.8	50.9	1	-15.8	-31%	-15.9	-31%

Appendix F – Comparison of the 2016, 2017, 2018 and 2019 annual mean Phase One NO₂ diffusion tube monitoring results

Table 15 presents a comparison of the annual mean NO₂ diffusion tube results to date. Sites that were removed / replaced during 2018 have not been included in this comparison.

Table 15: Comparison of the 2016, 2017, 2018 and 2019 annual mean NO₂ diffusion tube monitoring results

Site ID	Local Authority	Site Location	Site Location Type	Annual mean NO ₂ diffusion tube monitoring results (µg/m ³)			
				2016	2017	2018	2019
HS2-000020BM5	Camden Council	Junction of St Chad's Street and Grays Inn Road	Roadside	59.8	50.4	50.4	45.9
HS2-000020BM6	Camden Council	Brunswick Square	Roadside	50.4	47.4	44	40.3
HS2-000020BM7	Camden Council	Chalton Street	Roadside	66.8	58.4	54.9	52.0
HS2-000020BM8	Camden Council	Junction of Euston Square and Grafton Place	Roadside	66.9	58	59.3	56.3
HS2-000020BM9	Camden Council	Junction of Endsleigh Gardens and Upper Woburn Place	Roadside	59.5	52.4	57.9	49.1
HS2-000020BMA	Camden Council	Junction of Euston Road and Gower Street	Roadside	70.1	60.3	58.7	51.4
HS2-000020BMB	Camden Council	Whitfield Street	Background	46.7	45	39	37.2
HS2-000020BMC	Camden Council	Hampstead Road	Roadside	68	59.1	61.4	61.5
HS2-000020BMD	Westminster City Council	Lamp post on Park Crescent Road	Roadside	74.2	67.4	66.2	60.0
HS2-000020BME	Westminster City Council	Lamp post in between A501 and A4201	Roadside	96.7	81.6	85.5	77.2
HS2-000020BMF	Camden Council	Junction of Polygon Road and Ossulston Street	Background	42.4	35.8	29.7	28.6
HS2-000020BMH	Camden Council	Nash Street	Background	42.5	39.5	34.8	30.9
HS2-000020BMJ	Camden Council	Junction on Robert Street and Stanhope Street	Background	44.1	39.1	33.7	29.8
HS2-000020BMK	Camden Council	Junction of Plender Street and Bayham Street	Roadside	60.5	51.4	49.6	48.2
HS2-000020BML	Camden Council	Junction of Arlington Road and Mornington Crescent	Background	44.9	38.2	34	30.1
HS2-000020BMM	Camden Council	Junction of Bayham Street and Pratt Street	Roadside	71.4	67.3	57.4	51.3
HS2-000020BMN	Camden Council	Junction of Delancey Street and Albert Street	Roadside	45.6	41.9	39.5	36.9
HS2-000020BMQ	Camden Council	Junction of Parkway and Delancey Street	Roadside	61	48.6	53	44.8

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Site ID	Local Authority	Site Location	Site Location Type	Annual mean NO ₂ diffusion tube monitoring results (µg/m ³)			
				2016	2017	2018	2019
HS2-000020BMR	Camden Council	Junction of Oval Road and Jamestown Road	Background	43.2	40.1	35.7	31.8
HS2-000020BMS	Camden Council	Junction of Chalk Farm Road and Castlehaven Road	Roadside	61	50.6	54.6	46.9
HS2-000020BMT	Camden Council	Junction of Camden Road and Camden Street	Kerbside	88.1	62.4	48.7	44.3
HS2-000020BMU	Camden Council	Junction of Southampton Road and Fleet Road	Roadside	45	37.3	41.1	37.5
HS2-000020BMV	Camden Council	Primrose Hill Road	Roadside	43.4	39.3	38.3	33.7
HS2-000020BMW	Camden Council	Junction of Finchley Road and Hilgrove Road	Roadside	63.7	55.5	52.9	47.4
HS2-000020BMX	Westminster City Council	Sign post by roundabout on A5205	Roadside	59.3	51.7	49.5	43.0
HS2-000020BMY	Westminster City Council	Lamp post between Blomfield Road and Edgware Road	Roadside	64.4	57.4	55.9	49.4
HS2-000020BMZ	Camden Council	Junction of Finchley Road and Hendon Way	Roadside	93.4	83.9	81.9	75.1
HS2-000020BN0	Westminster City Council	Lamp post on Ladbrooke Grove	Roadside	50.9	45.8	48	48.7
HS2-000020BN1	Kensington and Chelsea Council	Sign post on St Ann's Villas	Roadside	53.9	43.1	44.5	42.6
HS2-000020BN2	Hammersmith and Fulham Council	Lamp post on Du Cane Road	Roadside	61.2	57.8	55.1	44.8
HS2-000020BN3	Brent Council	Sign post on High Street Harlesden	Roadside	65.7	52.5	56.1	50.2
HS2-000020BN4	Hammersmith and Fulham Council	End of cycle lane sign on Old Oak Road	Roadside	68.7	52.6	51.9	44.0
HS2-000020BN5	Ealing Council	Sign post on Victoria Road	Roadside	58.5	50.5	51.9	48.7
HS2-000020BN7	Ealing Council	The Approach street sign	Roadside	67.6	61	56	52.4
HS2-000020BNA	Camden Council	Junction of Regent's Park Road and Rothwell Street	Roadside	42.3	38.5	36.5	31.4
HS2-000020BNB	Camden Council	Junction of Gloucester Gate Bridge and Park Village East	Roadside	50.2	42.4	43.5	33.4
HS2-000020BNC	Camden Council	Junction of Outer Circle and Gloucester Gate	Background	32.4	28.8	30.2	25.6
HS2-000020BND	Westminster City Council	Outer Circle Regent's Park	Kerbside	42.7	40.1	35	31.8
HS2-000020BNG	Brent Council	Lamp post on Donnington Road	Roadside	45.5	38.6	39.6	38.0
HS2-000020BNH	Camden Council	Junction of Parkway and Albert Street	Kerbside	49.6	39.8	38.2	34.5

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Site ID	Local Authority	Site Location	Site Location Type	Annual mean NO ₂ diffusion tube monitoring results (µg/m ³)			
				2016	2017	2018	2019
HS2-000020BNJ	Westminster City Council	Light post on Park Road	Roadside	66.3	54.1	55	47.6
HS2-000020BNL	Westminster City Council	Lamp post on Penfold Street	Background	46.4	43.8	38.5	31.8
HS2-000020BNN	Camden Council	Lincoln's Inn Fields	Background	38.6	36.9	35.6	31.3
HS2-000020BNQ	Camden Council	Camley Street	Background	47.5	41.1	37.4	29.6
HS2-000020BNR	Hammersmith and Fulham Council	Lamp posts in Shepherd's Bush Common	Background	49.5	39.6	38.9	34.2
HS2-000020BNS	Brent Council	Lamp post on Tower Road by Willesden Jewish Cemetery	Background	34.1	30.6	27.4	25.3
HS2-000020BNT	Hillingdon Council	Lamp post on Pembroke Road	Background	-	30.6	25.3	23.4
HS2-000020BNU	Hillingdon Council	Cowley Road sign post at junction with Hillingdon Road	Roadside	-	47	45.8	41.1
HS2-000020BNV	Hillingdon Council	High Street sign post at junction with Pembroke Road	Roadside	-	37	43	37.7
HS2-000020BNW	Hillingdon Council	Signpost on A4020 Uxbridge Road at junction with Long Lane	Roadside	-	43.3	46.4	40.9
HS2-000020BNX	Hammersmith and Fulham Council	Signpost on A402 Goldhawk Road	Roadside	48.5	38.6	41.8	39.5
HS2-000020BNY	Camden Council	Junction of Mill Lane and Hillfield Road	Roadside	43.8	42.7	41.8	39.3
HS2-000020BNZ	Camden Council	Mansfield Road	Roadside	36.4	37.4	35.8	31.7
HS2-000020BP0	Camden Council	Junction of Camden Road and Torriano Avenue	Roadside	60.6	55	61.1	50.7
HS2-000020BP1	Westminster City Council	Lamp post on Brook Street	Roadside	61.8	58.7	63.3	54.0
HS2-000020BP2	Camden Council	Junction of Grays Inn Road and Holborn	Roadside	52	46.8	48.7	43.8
HS2-000020BP3	Westminster City Council	Triplicate site next to the Marylebone Road kerbside automatic monitoring stations	Kerbside	86.8	74.3	69.9	58.3
HS2-000020BP4	Camden Council	Triplicate site on Finchley Road next to Swiss Cottage kerbside automatic monitoring station	Kerbside	66.6	62.1	60.6	44.2
HS2-000020BP5	Camden Council	Triplicate site next to the Euston Road roadside automatic monitoring stations	Roadside	86.7	76.2	80.8	66.2
HS2-000020BP6	Ealing Council	Triplicate site next to the Ealing, Western Avenue Acton roadside automatic monitoring station	Roadside	64.7	57.3	56.2	50.6
HS2-000020BP7	Ealing Council	Triplicate site next to the Ealing, Hangar Lane Gyratory roadside automatic monitoring station	Roadside	72.3	71.9	70.2	63.1

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				2016	2017	2018	2019
HS2-000020BP8	Hillingdon Council	Triplicate site at South Ruislip roadside automatic monitoring station	Roadside	-	-	37.8	36.4
HS2-000020BP9	Camden Council	Triplicate site in Russell Square next to Bloomsbury urban background automatic monitoring station	Background	39.2	38.7	35.7	32.5
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	26.2
HS2-000020BPB	Camden Council	Camden High Street	Roadside	74.6	66	69.1	60.1
HS2-000020BPC	Camden Council	Castlehaven Road	Background	41	36.6	31.5	32.1
HS2-000020BPD	Camden Council	Prince of Wales Road	Roadside	36.8	34.4	33.8	30.0
HS2-000020BPE	Camden Council	Haverstock Hill	Roadside	48.3	44.3	43	42.2
HS2-000020BPF	Camden Council	Junction of Primrose Gardens and England's Lane	Background	40.9	37.2	31.9	31.8
HS2-000020BPG	Westminster City Council	Lamp post on St John's Wood Street	Roadside	49.8	43.2	43.4	38.5
HS2-000020BPH	Westminster City Council	Lamp post St John's Wood Terrace	Roadside	49	45.7	42.7	39.5
HS2-000020BPK	Hillingdon Council	Lamp post in crescent off Swakeleys Road	Roadside	-	-	35.8	34.9
HS2-000020BPL	Hillingdon Council	Warren Road sign post on corner of Swakeleys Road and Warren Road	Roadside	-	-	41.3	37.6
HS2-000020BPM	Brent Council	Lamp post along Gorefield Place near block of flats	Background	38	32.1	27.8	27.2
HS2-000020BPN	Hillingdon Council	Lamp post on B467	Roadside			31	31.0
HS2-000020BPO	Kensington and Chelsea Council	Lamp post off Silchester Road	Roadside	45.3	38.5	38.7	36.7
HS2-000020BPP	Hammersmith and Fulham Council	Sign post on A219 Scrubs Lane, South of Harrow Road	Roadside	54.4	46.3	46.3	46.5
HS2-000020BPR	Kensington and Chelsea Council	Lamp post at junction of Crowthorne Road and Bramley Road	Roadside	49.2	43	43.7	41.0
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	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	47.0

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				2016	2017	2018	2019
HS2-000020BPU	Camden Council	Junction of Gower Street and Grafton Way	Roadside	59.7	51.5	50.5	47.6
HS2-000020BPW	Camden Council	Junction of Delancey Street and Arlington Road	Roadside	53.4	42.9	45	40.2
HS2-000020BPX	Camden Council	Netley Street	Background	41.5	36	35.9	33.2
HS2-000020BPY	Camden Council	Stanhope Street	Background	38.3	32.4	32.2	28.9
HS2-000020BPZ	Camden Council	Albany Street	Roadside	47.4	39.5	40.4	38.5
HS2-000020BQ0	Camden Council	Werrington Street	Background	41.8	33.9	32.1	29.4
HS2-000020BQ1	Camden Council	Polygon Road	Background	39.7	35	34	31.6
HS2-000020BQ2	Camden Council	Alexandra Place	Background	34.8	31.6	28.7	27.6
HS2-000020BQ3	Camden Council	Harrington Square	Kerbside	53.8	45.5	44.6	40.6
HS2-000020BQ4	Camden Council	Junction of North Gower Street and Starcross Street	Background	43.8	39.2	37.7	33.2
HS2-000020BQ5	Camden Council	Adelaide Road	Roadside	54.6	43	39.9	37.6
HS2-000020BQ6	Camden Council	Mornington Terrace	Background	47.8	35.2	33.2	28.9
HS2-000020BQ7	Camden Council	Arlington Road	Background	52.4	34.9	32.1	28.9
HS2-000020BQ8	Camden Council	Clarkson Row	Background	-	35.3	32.6	28.9
HS2-000020BQ9	Camden Council	Park Village East	Background	49	32.7	30.8	27.1
HS2-000020BQA	Camden Council	Eversholt Street	Kerbside	71.3	53.6	49	45.6
HS2-000020BQB	Camden Council	Junction of Harrington Street and Vardell Street	Background	54.1	33.4	35	29.0
HS2-000020BQC	Camden Council	Junction of Robert Street and Hampstead Road	Kerbside	59.3	39.7	41.3	36.3
HS2-000020BQD	Camden Council	Drummond Crescent	Background	58.7	41.2	39.5	35.3
HS2-000020BQE	Hammersmith and Fulham Council	Lamp post next to No 11 Wulfstan Street	Background	52.7	36.8	32.6	28.6
HS2-000020BQF	Ealing Council	Conway Drive sign post	Roadside	76.2	57	58.5	53.3
HS2-000020BQG	Ealing Council	Lamp post outside No 1. Wells House Road on Old Oak Common Lane	Roadside	75	64	58	48.9
HS2-000020BQH	Hillingdon Council	Lamp post on High Road Ickenham	Roadside	-	37.2	41.6	38.1

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Document no: **HS2-HS2-EV-REP-000-000201**

Revision: **P01**

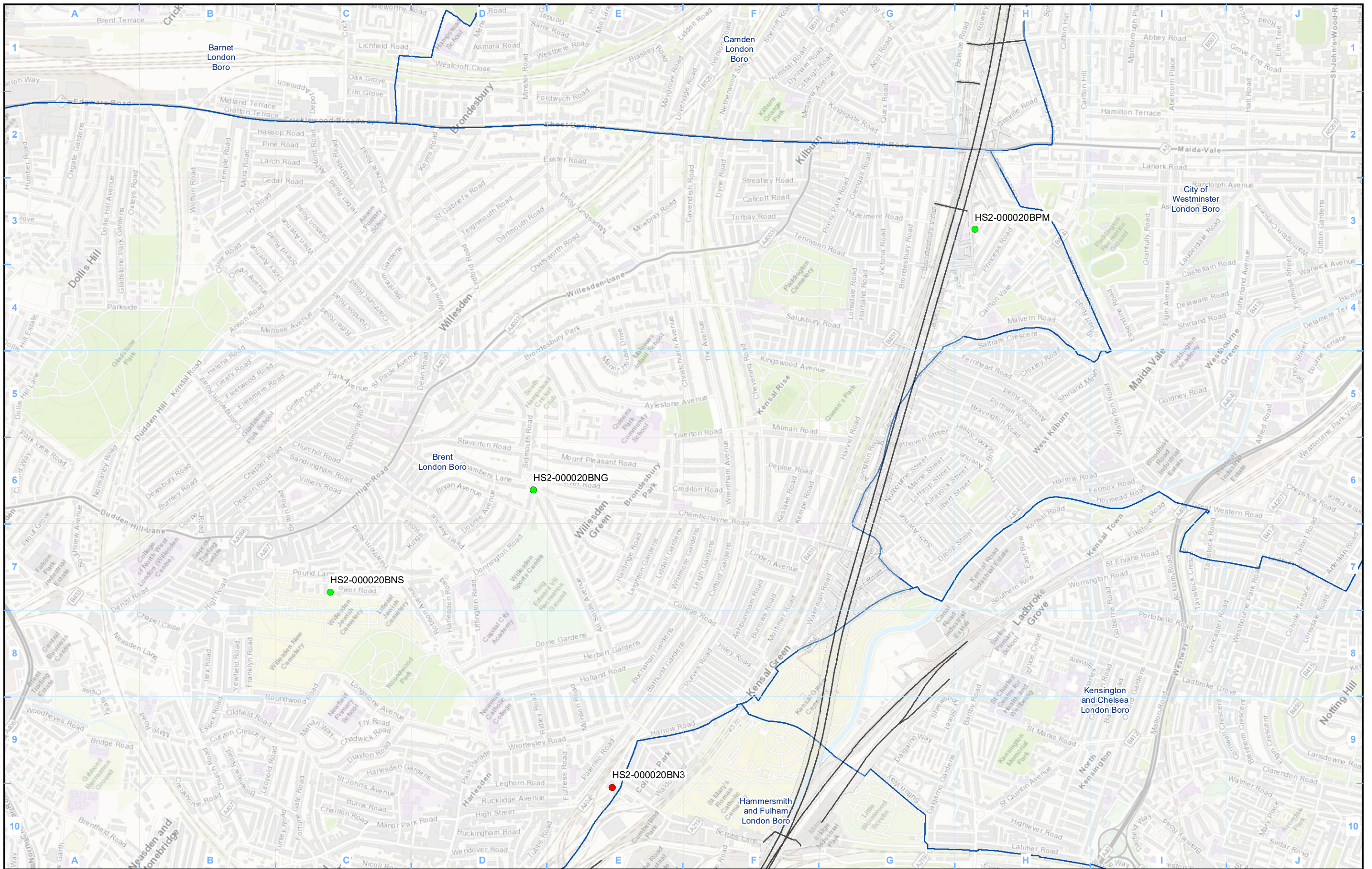
Site ID	Local Authority	Site Location	Site Location Type	Annual mean NO ₂ diffusion tube monitoring results (µg/m ³)			
				2016	2017	2018	2019
HS2-000020BQJ	Camden Council	Grafton Way	Background	-	54.2	51.2	51.3
HS2-000020BQL	Camden Council	Delancey Street	Roadside	-	49.3	51	44.8
HS2-000020BQN	Hillingdon Council	Lamp post on Park Road	Roadside	-	-	50.1	44.5
HS2-000020BQP	Hillingdon Council	Sign post on Long Lane	Roadside	-	-	41.8	40.9
HS2-000020BQQ	Kensington and Chelsea Council	Lamp post along Ladbroke Grove, near shops and bus stop at Trevorton Road junction	Kerbside	-	-	48.2	44.3
HS2-000020BQR	Camden Council	Lamp post on Park Village East	Background	-	-	34.8	29.3
HS2-000020BQS	Camden Council	Opposite Maria fidelis school on Phoenix Road	Background	-	-	33.1	30.9
HS2-000020BQT	Camden Council	Drummond Street	Background	-	-	38.8	35.7
HS2-000020BQU	Westminster City Council	Lamp post outside Edgware Road Station	Kerbside	-	-	61.9	61.6
HS2-000020BQV	Kensington and Chelsea Council	Lamp post on St Ann's Street	Kerbside	-	-	-	35.0

Notes:

Exceedances of the NO₂ annual mean air quality standard of 40 µg/m³ are shown in bold.

Appendix G – Maps of HS2 monitoring survey locations and 2019 results

Figure 1 - 8: Maps of HS2 monitoring survey locations and 2019 results.



Legend

NO₂ Monitoring Positions

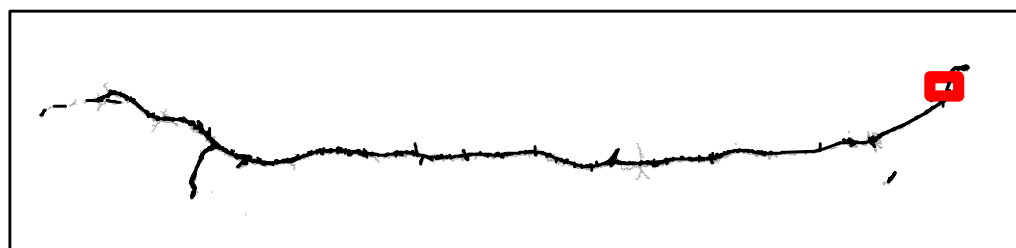
2019 Results

- < 40 µg/m³ (below AQS)
- ≥ 40 µg/m³ (above AQS)

— Work Sections Centreline

▭ Consolidated Land Boundary

▭ District Borough Unitary Boundaries



Map Number
HS2-HS2-EV-REP-000-000201

Map Name
**Phase 1 NO₂ Monitoring Positions
London Borough of Brent**

(1 of 8)

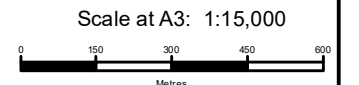


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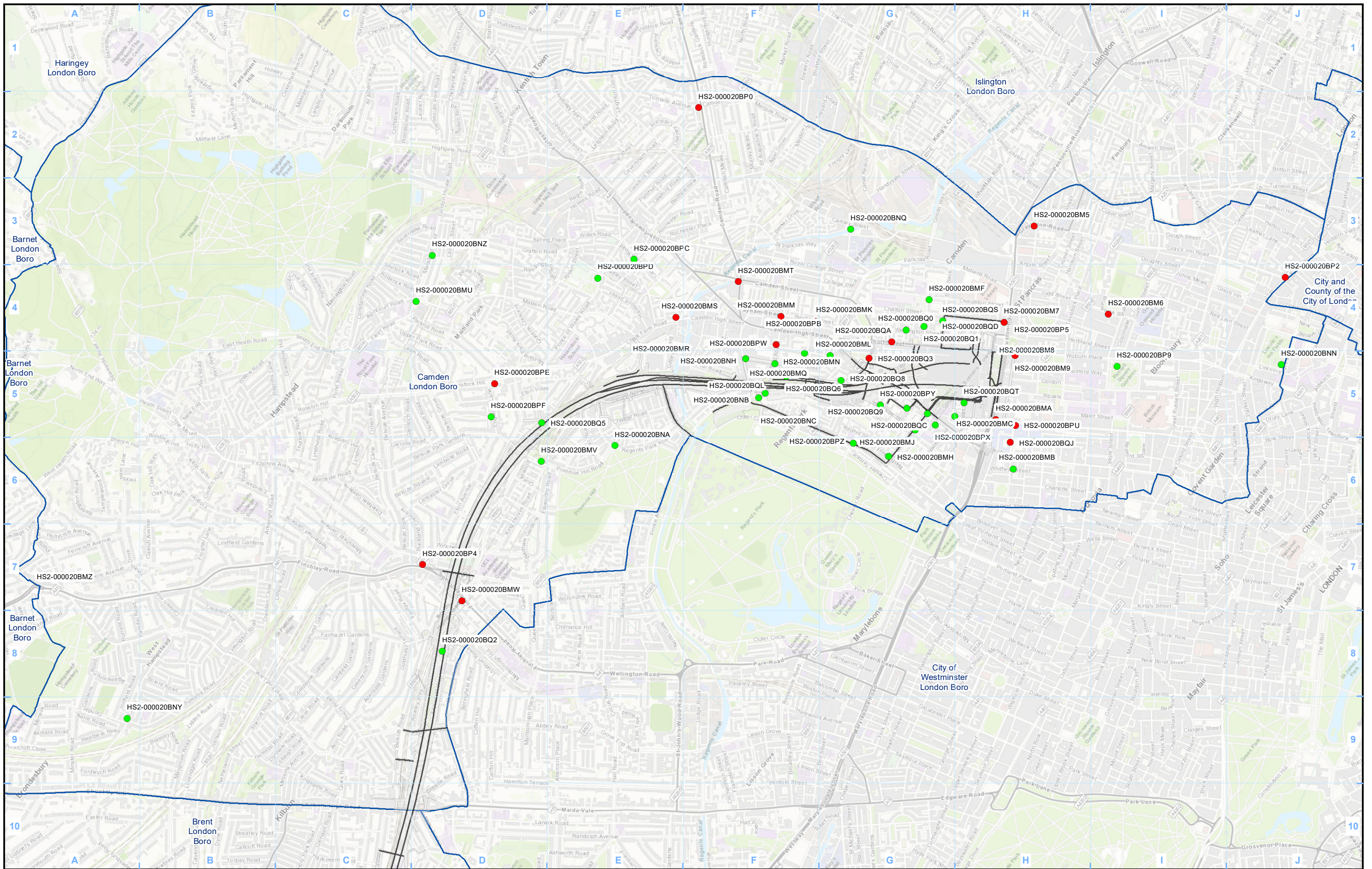
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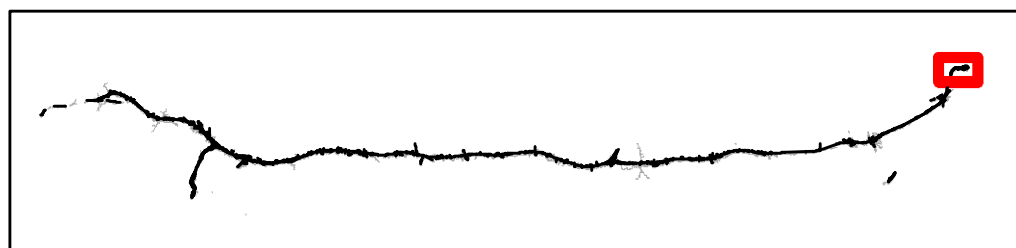


Doc Number:

Date: 13/08/20



- Legend**
- NO₂ Monitoring Positions**
 - 2019 Results**
 - < 40 µg/m³ (below AQS)
 - ≥ 40 µg/m³ (above AQS)
 - Work Sections Centreline
 - ▭ Consolidated Land Boundary
 - ▭ District Borough Unitary Boundaries



Map Number
HS2-HS2-EV-REP-000-000201

Map Name
**Phase 1 NO₂ Monitoring Positions
 London Borough of Camden**

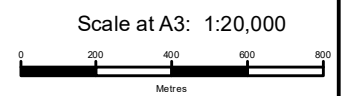
(2 of 8)



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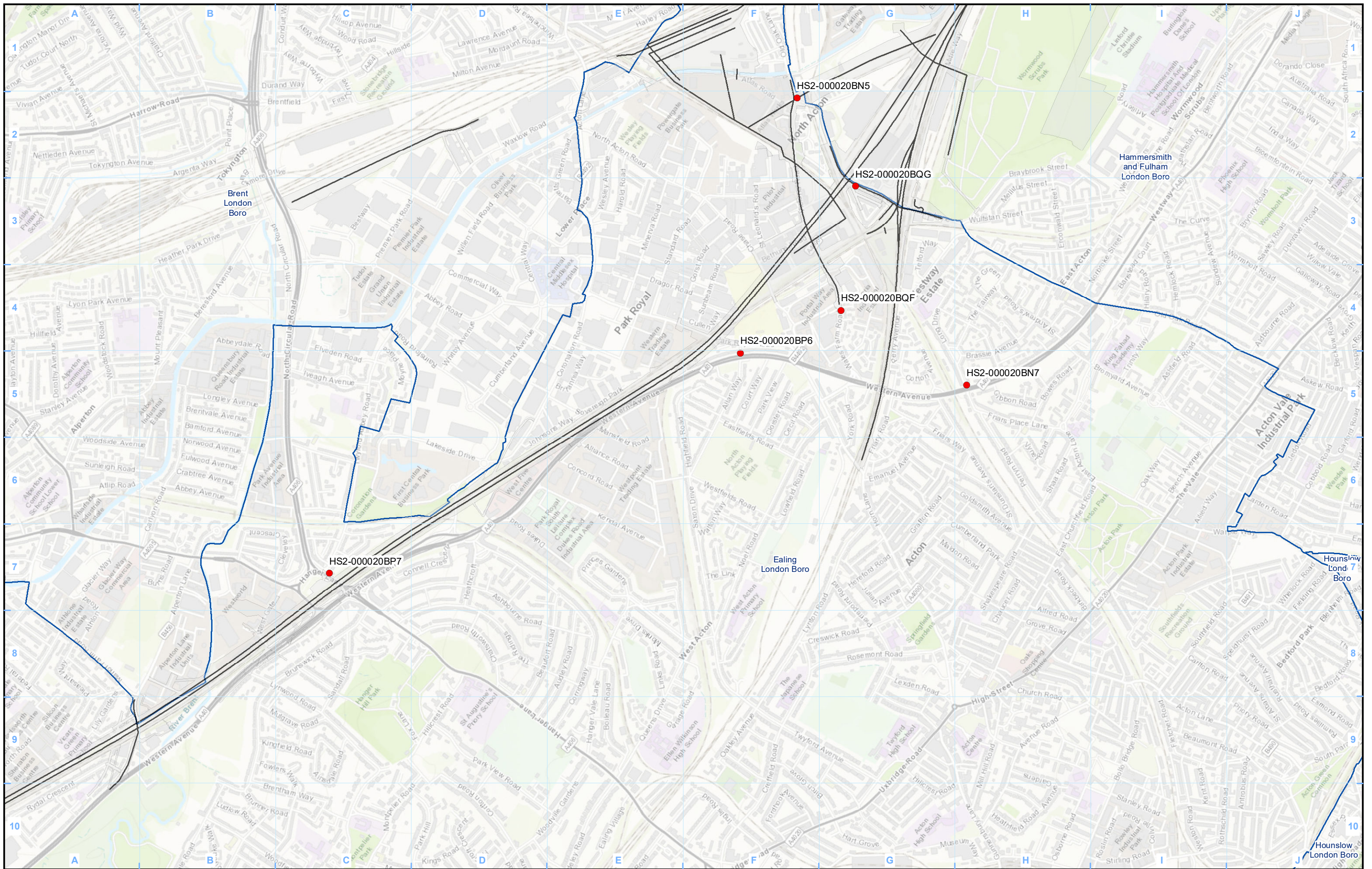
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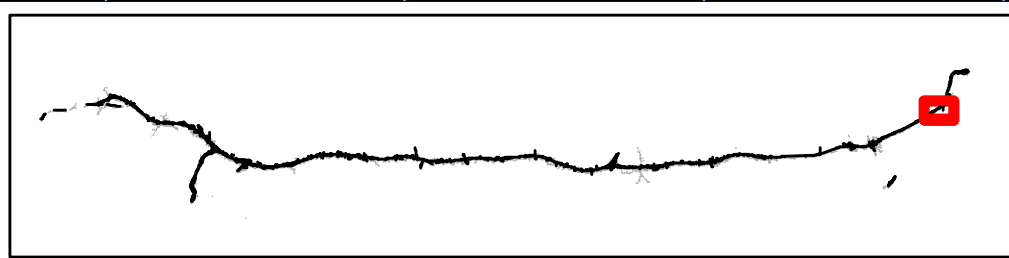


Doc Number:

Date: 13/08/20



- Legend**
- **NO₂ Monitoring Positions**
 - **2019 Results**
 - < 40 µg/m³ (below AQS)
 - ≥ 40 µg/m³ (above AQS)
 - Work Sections Centreline
 - ▭ Consolidated Land Boundary
 - ▭ District Borough Unitary Boundaries



Map Number
HS2-HS2-EV-REP-000-000201

Map Name
**Phase 1 NO₂ Monitoring Positions
 London Borough of Ealing**

(3 of 8)

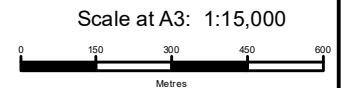


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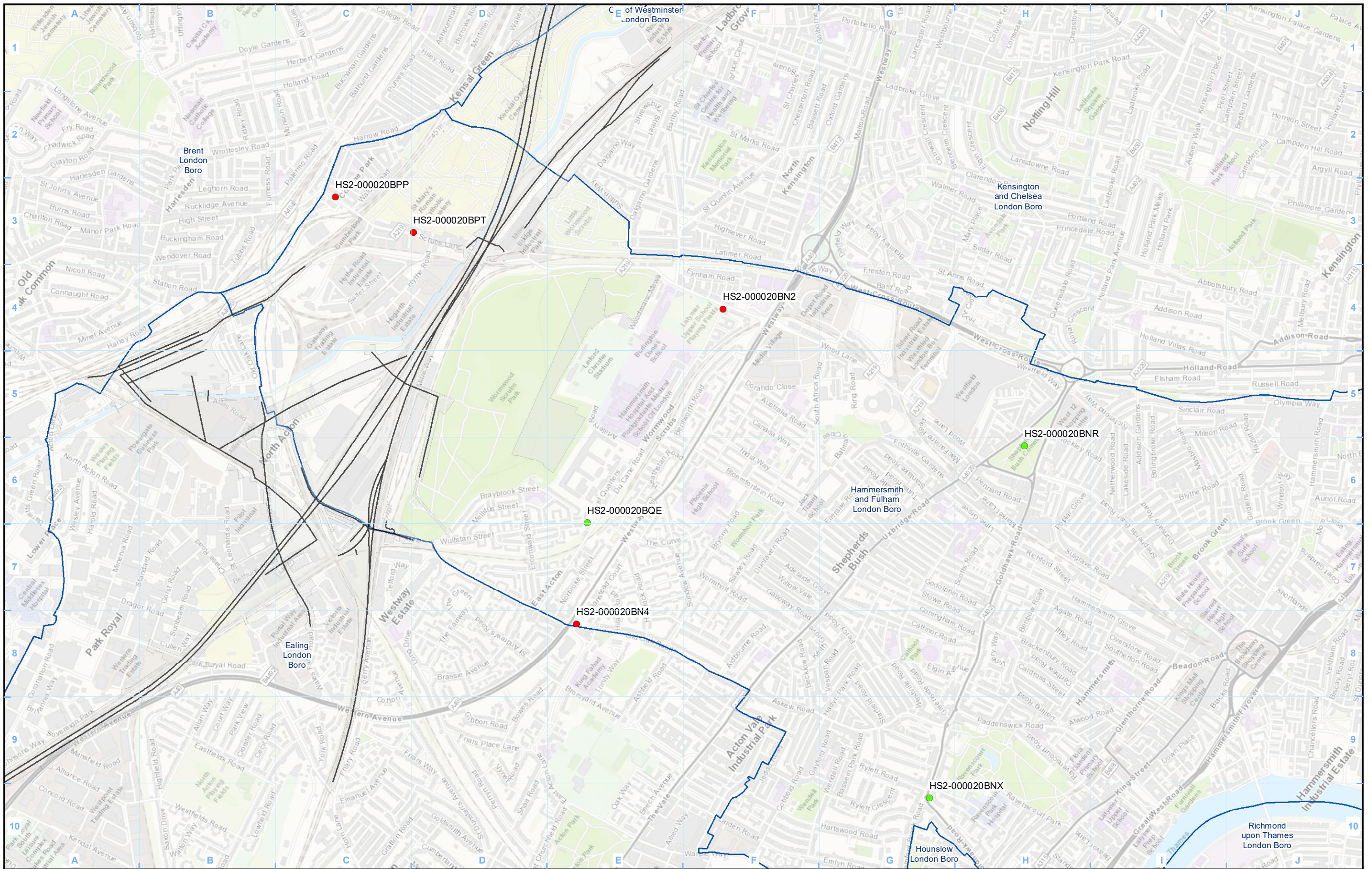
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Legend

NO₂ Monitoring Positions

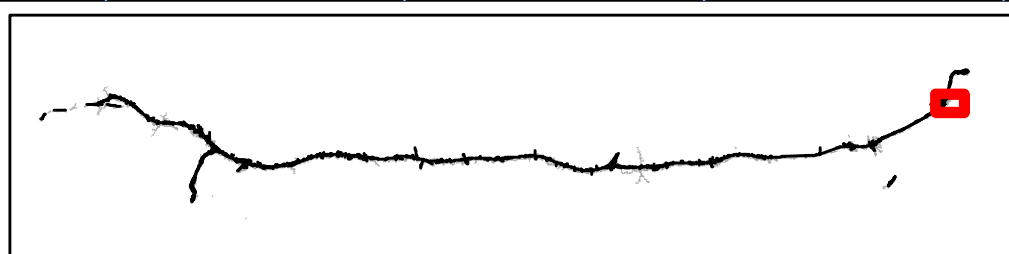
2019 Results

- < 40 µg/m³ (below AQS)
- ≥ 40 µg/m³ (above AQS)

— Work Sections Centreline

▭ Consolidated Land Boundary

▭ District Borough Unitary Boundaries



Map Number
HS2-HS2-EV-REP-000-000201

Map Name
**Phase 1 NO₂ Monitoring Positions
London Borough of Hammersmith
and Fulham**

(4 of 8)

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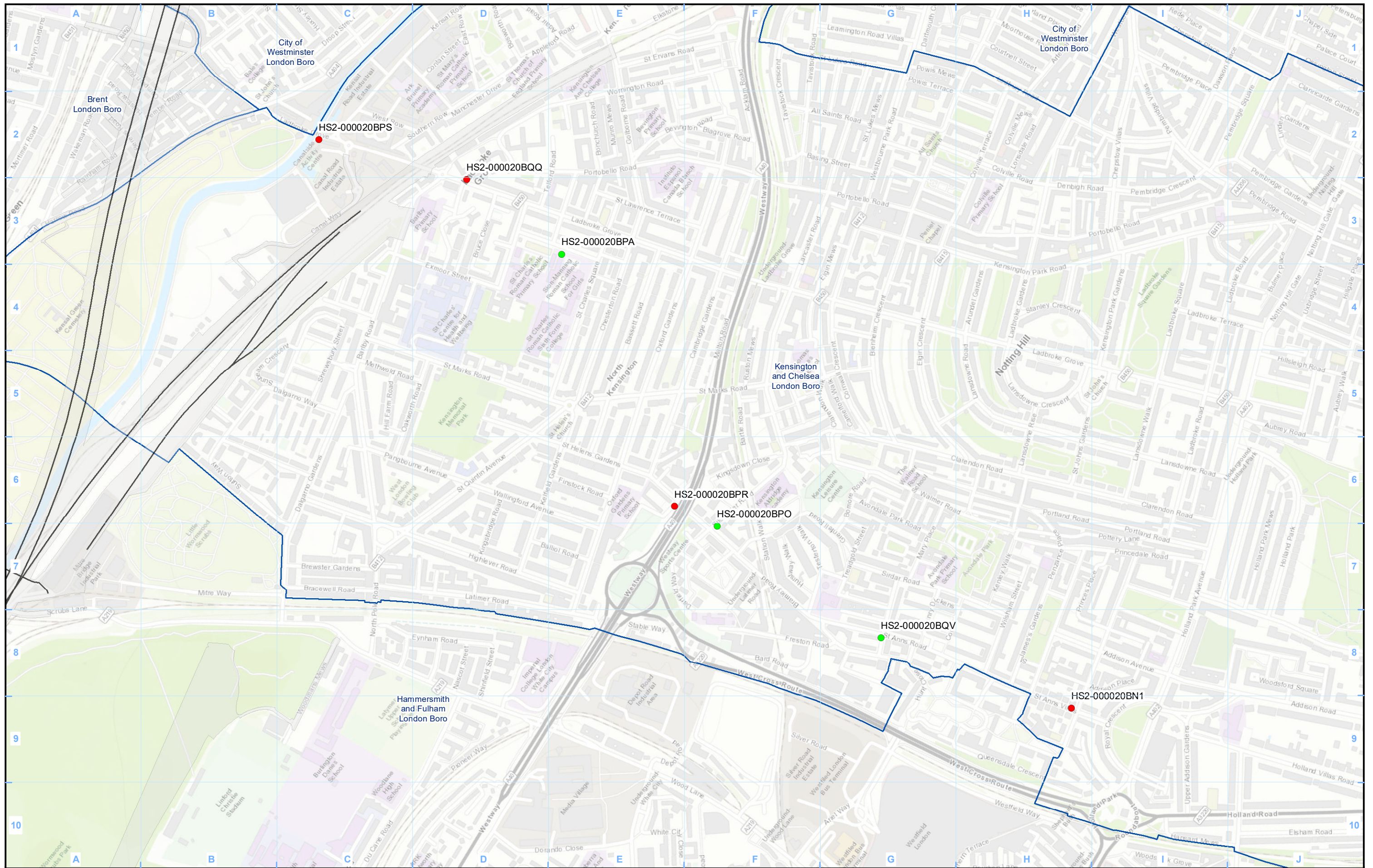
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Legend

NO₂ Monitoring Positions

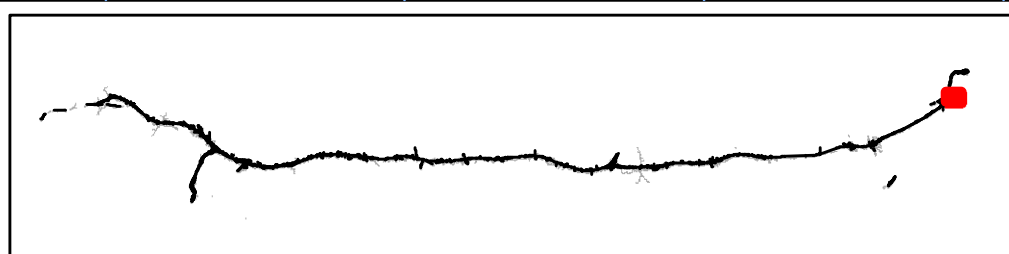
2019 Results

- < 40 µg/m³ (below AQS)
- ≥ 40 µg/m³ (above AQS)

— Work Sections Centreline

▭ Consolidated Land Boundary

▭ District Borough Unitary Boundaries



Map Number
HS2-HS2-EV-REP-000-000201

Map Name
Phase 1 NO₂ Monitoring Positions
Royal Borough of Kensington
and Chelsea

(5 of 8)



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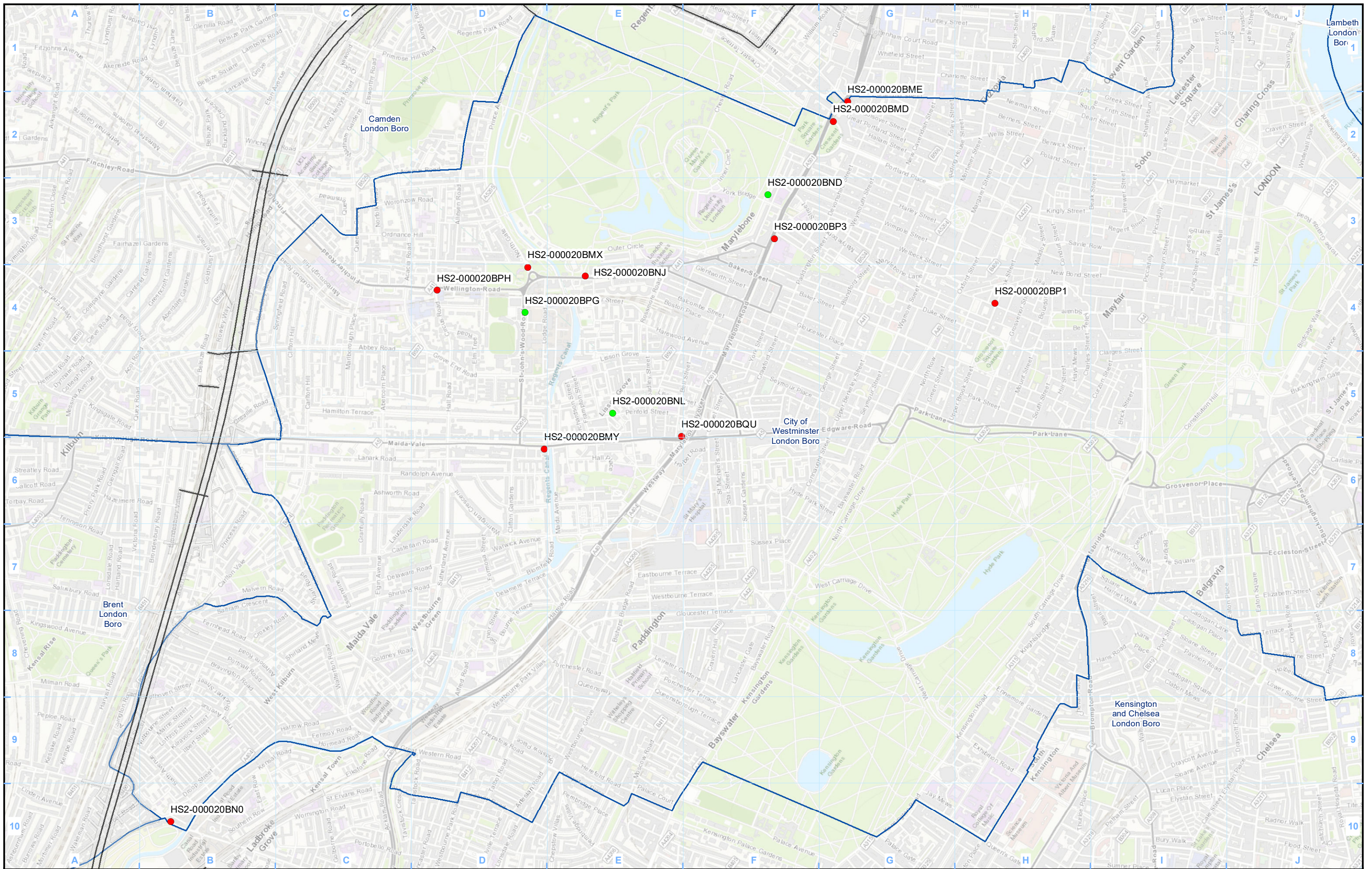


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Legend

NO₂ Monitoring Positions

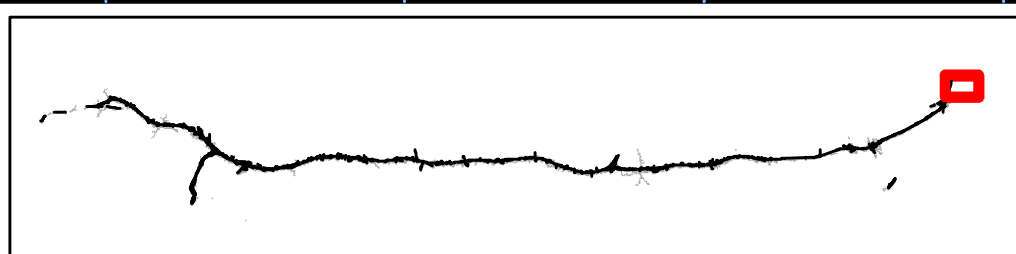
2019 Results

- < 40 µg/m³ (below AQS)
- ≥ 40 µg/m³ (above AQS)

— Work Sections Centreline

▭ Consolidated Land Boundary

▭ District Borough Unitary Boundaries



Map Number
HS2-HS2-EV-REP-000-000201

Map Name
Phase 1 NO₂ Monitoring Positions
City of Westminster

(6 of 8)

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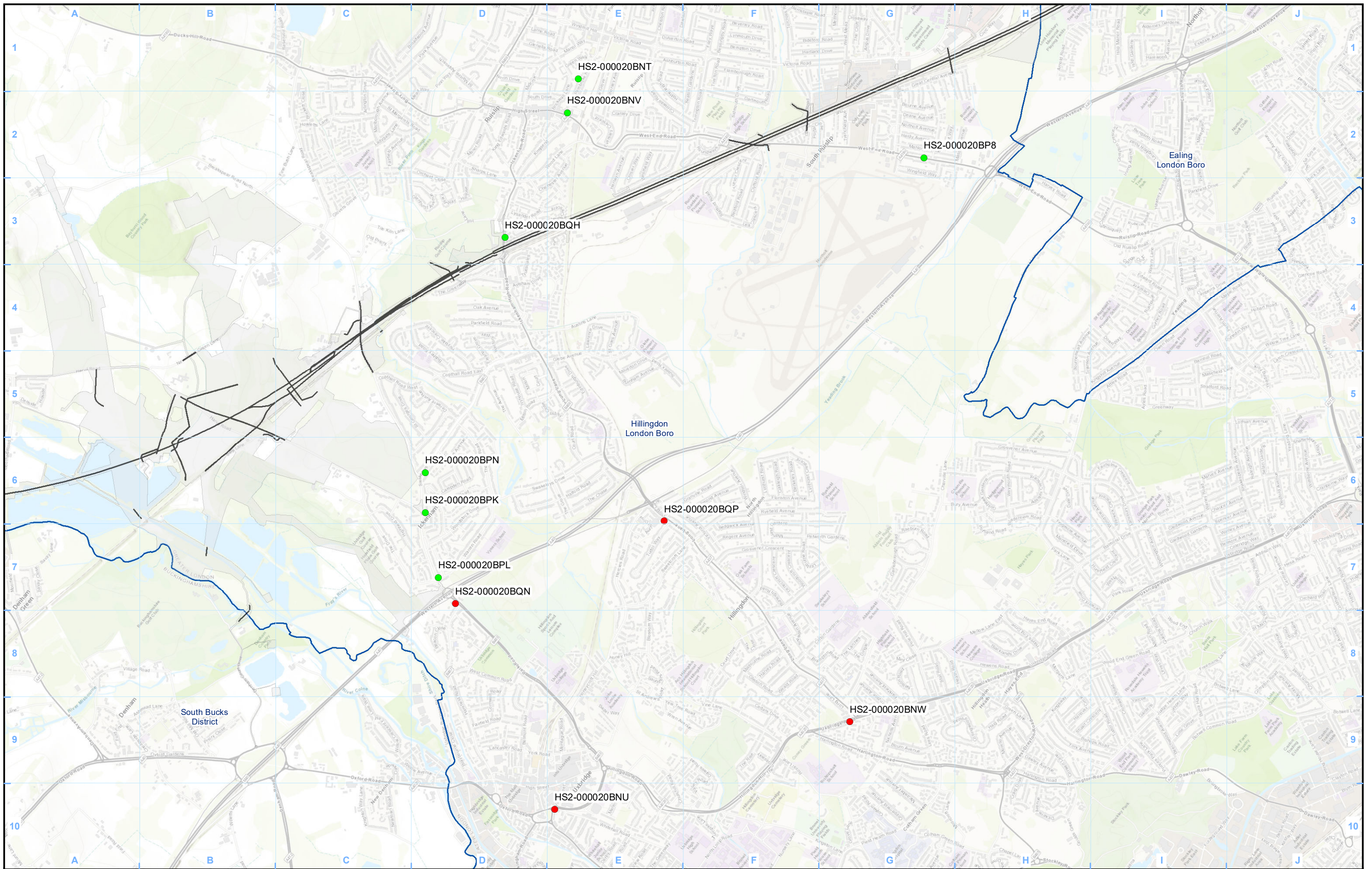
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NO₂ Monitoring Positions

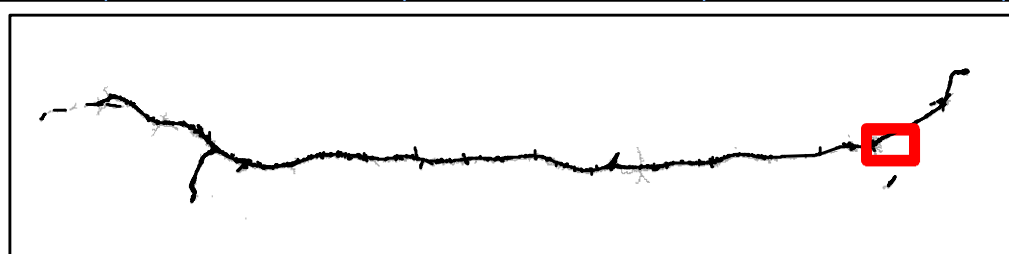
2019 Results

- < 40 µg/m³ (below AQS)
- ≥ 40 µg/m³ (above AQS)

— Work Sections Centreline

▭ Consolidated Land Boundary

▭ District Borough Unitary Boundaries



Map Number
HS2-HS2-EV-REP-000-000201

Map Name
Phase 1 NO₂ Monitoring Positions
London Borough of Hillingdon

(7 of 8)



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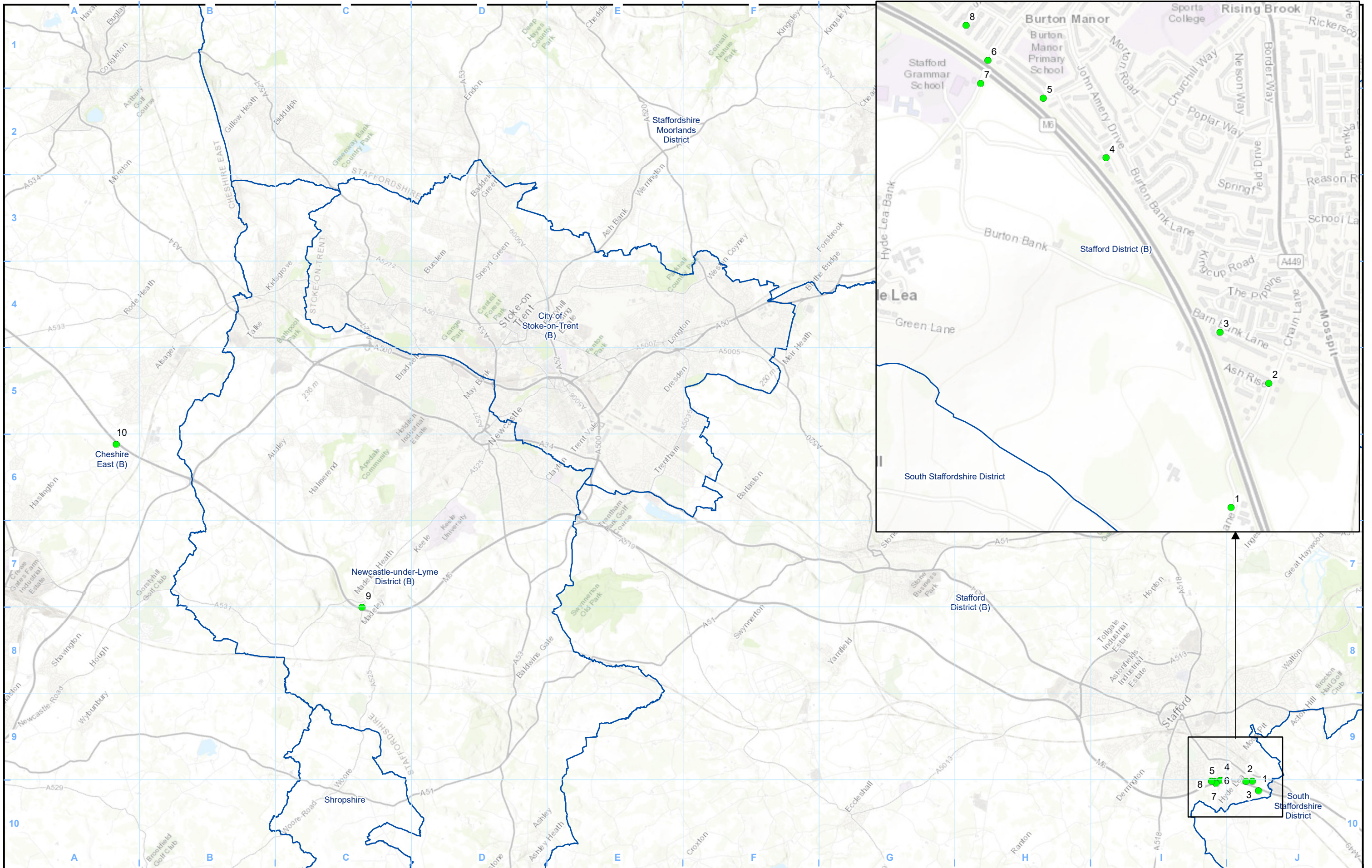
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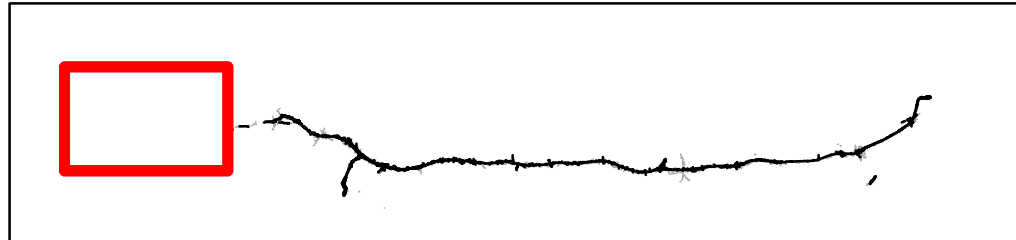


Date: 13/08/20



Legend
NO₂ Monitoring Positions

- 2019 Results**
- < 40 µg/m³ (below AQS)
 - ≥ 40 µg/m³ (above AQS)
 - District Borough Unitary Boundaries




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Map Number
HS2-HS2-EV-REP-000-000201

Map Name
**Phase 2a NO₂ Monitoring Positions
 Baseline Monitoring in Staffordshire,
 Newcastle-under-Lyme and Cheshire East**

(8 of 8)




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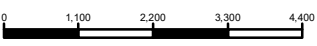
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Metres

Date: 17/08/20

Endnotes

ⁱ HS2 Phase One Information Paper E31: Air Quality

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/672406/E31 - Air Quality v1.5.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/672406/E31_-_Air_Quality_v1.5.pdf) and HS2 Phase 2a Information Paper E14: Air Quality

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/828982/E14 Air Quality v1.2.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/828982/E14_Air_Quality_v1.2.pdf)

ⁱⁱ HS2 Air Quality Action Plan:

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/813529/HS2 AQ Action Plan Final Version1 June2019.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/813529/HS2_AQ_Action_Plan_Final_Version1_June2019.pdf)

ⁱⁱⁱ HS2 Phase One Information Paper E31: Air Quality

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