2023 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the Environment Act 1995 Local Air Quality Management, as amended by the Environment Act 2021

June 2023

Information	<Local Authority Name> Details
Local Authority Officer	Roger Pitman
Department	Regulatory Environment Protection and Housing Team
Address	Council Offices, Gernon Road, Letchworth Garden City, Hertfordshire, SG3 6JF
Telephone	01462 474 263
E-mail	roger.pitman@north-herts.gov.uk
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Executive Summary: Air Quality in Our Area

Air Quality in North Hertfordshire

Air pollution is associated with a number of adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children, the elderly, and those with existing heart and lung conditions. There is also often a strong correlation with equalities issues because areas with poor air quality are also often less affluent areas[1,2].

The mortality burden of air pollution within the UK is equivalent to 29,000 to 43,000 deaths at typical ages[3], with a total estimated healthcare cost to the NHS and social care of £157 million in 2017[4].

Due to time delays in reporting traffic data statistics, we can only report on traffic data to the end of 2021. Bulked traffic data for Hertfordshire from the Department for Transport (DfT) shows that traffic levels in pandemic years (2020-21) reduced. Total motor vehicle counts across Hertfordshire during 2021-21 were approximately 15% less than the previous two pre-pandemic years (2018-19). Undoubtedly traffic levels will have increased during 2022 compared to 2002-21, but we are unable to provide reliable data for 2022, until published by DfT.

Air Quality data for 2022 therefore must be considered as still being influenced by the expectation that traffic data levels for 2022 have not yet fully returned to pre-pandemic levels. From National traffic data annual statistics supplied by the Department for Transport (DfT) for Hertfordshire as a whole, total motor traffic on Hertfordshire's roads fell

[1] Public Health England. Air Quality: A Briefing for Directors of Public Health, 2017

[2] Defra. Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

[3] Defra. Air quality appraisal: damage cost guidance, January 2023

[4] Public Health England. Estimation of costs to the NHS and social care due to the health impacts of air pollution: summary report, May 2018

by 20% in 2020 compared to the average of the three previous years. Total traffic levels increased in 2021 but still remain at 12% below pre-pandemic levels.

In comparison if we consider averages of all roadside diffusion tube measurements in North Hertfordshire over the same period (2018-2022), while traffic levels remained constant up to 2019, the annual roadside pollution averages were falling year on year, with a 14% reduction between 2017 and 2019. In the pandemic years of 2020 and 2021 average roadside pollution levels continued to fall by a further 26% to a level 36% below levels recorded in 2017. In 2021, where average total traffic have increased from 2020, (but remain at 12% below pre-pandemic levels), average roadside pollution levels have continued to fall. We do not have DfT traffic data for 2022, but the expected increases in total traffic for 2022 are reflected by an increase in average pollution levels, but these levels remain below pre-pandemic levels.

The local air quality monitoring strategy has continued, highlighting that measured pollution levels in both AQMA's are now significantly below objective levels. It is the Council policy to retain these AQMA's at the present time as a mechanism of providing a check of the impact of significant construction to provide new dwellings and employment areas across the district and beyond in Stevenage.

Additionally, the continued expansion proposals, now submitted formally as a proposal to the Secretary of State will provide further reasons for continued monitoring and assessment across the district.

The North Hertfordshire Local Plan 2011-2031 was adopted by the Council on 8 November 2022.

As well as planning for approximately 11,600 new homes to meet the needs of our district and 1,400 to meet the needs of Luton, our Local Plan sets out plans for new and expanded employment sites at Baldock and Royston. The Local Plan also sets out the requirements for supporting roads, schools, retail, leisure and community facilities to help our communities thrive.

The Local Plan will encourage good design throughout the district and in particular highlight the need for environmental considerations, including:

- Encouraging walking and cycling, with strategic housing sites having to create integrated, accessible and sustainable transport systems.

- Reducing water use in new properties.
- Providing appropriate spaces and new habitat for nature known as biodiversity net gain (separate national legislation has mandated this should be 10%).

The Plan will be reviewed by the end of 2023 to help decide how and when it should be updated in the future.

Hertfordshire County Council are expecting to finalise their EV Charging Strategy for on-street charging across the County towards the end of 2023. Along with a new Government funding initiative, the LEVI fund, which is expected to further drive co-ordinated initiatives across the County for additional street-based EV charging.

The two historic sites declared as Air Quality Management Areas (AQMAs), Stevenage Road (AQMA 2012) and Payne's Park Roundabout (AQMA 2017) along the A602, both continue to show improved levels of air quality.

In summary: results of monitoring data corrected for relevant exposure shows the following:

Stevenage Road, Hitchin AQMA

- No results above objectives for 6 years in succession (2017-2022 inclusive).
- No results within 10% of objective levels in the last 5 years (2018-2022 inclusive)

Payne's Park, Hitchin AQMA (Incomplete data for 2020)

- No results above objective levels for the last 4 years
- No results within 10% of objective levels in the last 3 years
- Two years with results above objectives in last 6 years (2018, 2017)
- 3 of last 6 years with results within 10% of objective levels (2019,2018,2017)

Both of these AQMA's can be considered for revocation, based upon these results.

However, it remains the Council's wish to retain these AQMAs to provide a robust monitoring base in light of local housing and industrial developments, alongside the significant expansion plans for Luton Airport to the south of the district. The impacts on traffic movements East/West through Hitchin need to be considered with regard both our and Stevenage's Local Plans, also the East/West movements as a result of Luton Airports proposed increase in annual passenger through put (18 million to 32 million) needs to be proven and tested at Examination by the Planning Inspectorate

For Both AQMA sites

The monitoring locations within and close to each AQMA have been reviewed to support evidence to review status of each AQMA. This data will be available for the 2024 ASR Report.

The locations of the AQMAs can be found in Appendix D, the formal designations can be found at https://www.north-herts.gov.uk/air-quality-management-areas and the AQMAs are also included within the national list of AQMAs that can be found at http://uk-air.defra.gov.uk/aqma/list.

As a result of the designation of the 2017 AQMA, NHDC consulted on and published a joint Action Plan to identify measures that can be taken to attempt to reduce emissions of nitrogen dioxide and improve air quality at both AQMAs.

The original joint Action Plan can be found at http://www.north-herts.gov.uk/home/environmental-health/pollution/air-quality/air-quality-management-areas-north-hertfordshire and the latest update sits in Section 2 of this report.

As reported earlier in the ASR, roadside air quality across the district continues to reflect the recent trends in traffic volumes found on local roads. There has been a long-term trend of improving air quality that reflect policies operating at a national, regional, and local levels.

However, the generic reduction in all motor vehicle traffic volumes by the order of 10% in the pandemic years of 2020 and 2021 provide a timely reminder that measures to control traffic, particularly in populated urban areas, alongside continued improvements in motor vehicle engine technology, can bring about significant reductions in air pollution levels (~23% reduction 2020-21 compared to 2018-19). As traffic levels have begun to increase post-pandemic, but still not returned to pre-pandemic levels average roadside pollution levels have also increased but remain significantly below objective levels and below pre-pandemic levels.

Measures to reduce emissions to the atmosphere are addressed by policies that are developed to tackle climate change, as well as air pollution. Transport Policies that control congestion at pollution hotspots on urban roads closest to housing are also significant.

In May 2019, the Council passed a motion to declare a Climate Emergency. In this motion the Council pledged their commitment to do everything within their power to become

carbon neutral by 2030. The revised Climate Change Strategy sets out how the council will do this.

On 16th March 2021 Cabinet approved the adoption of an updated Climate Change Strategy 2021-2026 including appendices detailing achievements to date and proposed actions. It was also approved that the target date for North Herts to become a Net Zero Carbon district be brought forward to 2040 from a previous date of 2050, as per the revised strategy. The strategy set out how the council plans to meet this target as well as its target of reaching net zero for its own operations by 2030. On 13th December 2022 an updated version of this Strategy was approved by Cabinet. This became the Climate Change Strategy 2022-2027. It builds upon the previous iteration of the strategy – no substantial changes were made to the direction of the Strategy or to the objectives, but the policy context was updated, additional information about climate adaptation was included, and some additional actions were created to address identified gaps.

The Strategy's Objectives are:

● Achieve Carbon Neutrality for the council's own operations by 2030 (at least Scope 1 and Scope 2)

● Ensure all operations and services are resilient to the impacts of climate change

● Achieve a Net Zero Carbon district by 2040

● Become a district that is resilient to unavoidable impacts of climate change

The Strategy's three priorities, under which the actions sit, are:

1. Taking Action - Taking direct action to reduce the Council's carbon emissions

2. Enabling Carbon Savings - Ensuring that our policies enable citizens and businesses to reduce their emissions.

3. Inspiring the Community - Encouraging citizens and businesses to take action to go further and faster in cutting carbon emissions

Action taken so far includes:

- **Commissioned an assessment of the Council's carbon emissions and a roadmap to Net Zero to allow us to understand where our emissions come from and how we can reduce them.**
- **Switched to renewable electricity and 'green' gas to power and heat our buildings.**

- **Made changes to the Taxi and Licensing Policy including: a no idling points system introduced to enforce against drivers who do not comply, and a requirement for all vehicles new or replaced from 2028 to be ultralow emission vehicles (ULEVs).**
- **Continued replacing council vehicles with ULEVs or electric vehicles when the leases come up for renewal, in accordance with our 2019 Council resolution to do so.**
- **Installed four new EV chargers at the Council Offices to support our transition to an electric fleet.**
- **Committed to using the Section 106 Sustainable Transport Funds we hold for measures that encourage cycling and walking as well as public transport.**
- **Worked with Hertfordshire County Council to deliver new cycle stands in the district as part of the Department for Transport Emergency Active Travel Fun**
- **Continued to work with Hertfordshire County Council to develop a Local Cycling and Walking Infrastructure Plan.**
- **Given away 10,000 free trees to North Herts residents.**
- **Approved a Council motion to promote renewable energy and support the Government's Local Electricity Bill which if made law, would make the set up and running costs of selling local electricity to local customers affordable.**
- **Delivery of a Solar Bulk Buy Scheme for residents – Solar Together.**
- **Promoting low emission fleet to Hitchin businesses through the ECO Stars Scheme, which helps businesses understand how they can better manage their fleet in terms of efficiency.**
- **Had Solar PV panels installed on the roof of the council offices.**

<u>Further actions proposed by the Climate Change Strategy and relating to air quality include:</u>

- In accordance with the council's 2019 resolution, continue replacing all future operational vehicles leased or purchased by the council with Ultra Low Emission Vehicles (ULEVs) or zero emission vehicles until the last non-ULEV vehicle leases expire; and encourage contractors to adopt similar measures

- Reduce staff and Councillor business travel through use of Zoom and similar technologies as much as possible, and reduce staff commuting through home working
- Explore opportunities around low-emission refuse freighters
- Investigate low carbon solutions for the next waste contract which will commence in 2025
- Ensure our waste depot has the appropriate infrastructure to support low carbon solutions and our climate targets
- Establish a process for ascertaining and reporting the carbon impact of proposed projects and decisions
- Quantify the contribution that tree planting and soil sequestration within North Herts could make to offsetting the council's carbon emissions
- Provide more electric car charging facilities in our car parks
- Explore the possibility of making it cheaper for zero emission vehicles to use Council car parks
- Work with the County Council to improve the provision of on-street Electric Vehicle (EV) charging
- Work with other public and private entities/partners to improve provision of EV charging
- Progress the implementation of a better cycle network in North Herts, linking the district and beyond
- Ensure that masterplans and planning applications for new development are designed around streets and routes for active travel (rather than cars) and create walkable neighbourhoods
- Encourage residents to make behaviour changes by highlighting positive actions that can be taken, and informing them of more environmentally friendly options

Thus, measures to address climate change can be considered in tandem with measures to address air pollution, and vice-versa.

Full details of the actions the Council has taken to date, and measures it proposes to take and has taken are presented in The Climate Change Strategy and its appendices, available on this webpage: https://www.north-herts.gov.uk/climate-change

As reported in the 2022 ASR, NHDC continues to work closely with a number of key partnerships, including:

- Hertfordshire County Council, Transport Planning, Public Health, and Electric Vehicle and Future Transport Group.
- Hertfordshire Climate Change and Sustainability Partnership (HCCSP)
- Herts & Bedfordshire Air Quality Forum
- NHDC Officers for Strategic Planning, Transport Planning, and Development Management.

The challenges to maintaining reduced levels of air pollution remain as previously reported, notably increased traffic related to housing and related infrastructure growth, and the potential growth in traffic that would be stimulated by the proposed expansion to Luton Airport to the south-west of the district.

During the last year NHC have been engaged in making responses to the Secretary of State regarding the potential air quality and noise impacts of the proposed Luton Airport expansion. Statutory consultations have taken place in the last year and are ongoing.

London Luton Airport Ltd, rebranded as Luton Rising (LR), submitted their application for a Development Consent Order (DCO) involving the expansion of Luton Airport from 18 million passengers per annum (mppa) to 32mppa (including a new terminal and associated infrastructure) on 27 February 2023. The application was accepted by the Planning Inspectorate (PINS) on 27 March 2023. The Examination will run for the next 18 months.

There are two expansions being proposed for Luton Airport, from 18mppa to 19mppa, which is (as of 17 May 2023) awaiting determination by the Planning Inspectorate; and the DCO currently in pre-examination would raise the ceiling again to 32mppa. The DCO proposes alterations to junctions on the A505 and A602 in Hitchin to increase capacity for motor traffic which, if utilised, will have a negative impact on local air quality. If the additional capacity is not utilised, the impact may be positive if traffic can then move through the area more quickly. In either case, it could undermine efforts to provide for and incentivise active travel as an attractive and safe alternative to driving, which would otherwise reduce traffic volumes and associated air pollution.

There are no other new sources of air pollution from industry in the area.

Actions to Improve Air Quality

Whilst air quality has improved significantly in recent decades, there are some areas where local action is needed to protect people and the environment from the effects of air pollution.

The Environmental Improvement Plan[5] sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term $PM_{2.5}$ targets. The National Air Quality Strategy, due to be published in 2023, will provide more information on local authorities' responsibilities to work towards these new targets and reduce $PM_{2.5}$ in their areas. The Road to Zero[6] details the approach to reduce exhaust emissions from road transport through a number of mechanisms; this is extremely important given that the majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

Actions to improve air quality can be linked to measures developed to combat climate change. In May 2019 North Herts District Council declared a climate emergency and committed to take action to address the causes of climate change across the district. The Council pledged to do everything within its power to reduce carbon emissions from its own operations to a carbon neutral position by 2030. The Council's updated Climate Change Strategy 2022-27 sets out the actions that the Council will take to achieve this goal and states our other objectives of ensuring all operations and services are resilient to the impacts of climate change, achieving a net zero carbon district by 2040, and becoming a district which is resilient to the unavoidable impacts of climate change.

The Council has completed a feasibility study in relation to the procurement of EV charging Infrastructure in North Hertfordshire and has undertaken a procurement process to provide additional EV charging points in Council Car Parks. Alongside a developing strategy for EV infrastructure on a County-wide basis, linked to the LEVI Fund, these initiatives are expected to provide the basis for the ongoing expansion of EV charging infrastructure.

[5] Defra. Environmental Improvement Plan 2023, January 2023

[6] DfT. The Road to Zero: Next steps towards cleaner road transport and delivering our Industrial Strategy, July 2018

As part of the Council's Local Plan 2011-2031, NHC published an accompanying Transport Strategy in 2017, with the stated aim of focusing on the potential for solutions and mitigations to better reflect the new sustainable transport priorities, which is further reflected in HCC's LTP4[i]. This includes a commitment to a transport user hierarchy, which seeks to prioritise active and sustainable modes of travel.

Transport is recognised as one of largest contributors of Greenhouse Gases; as such, if the Council is to realise its aim of net zero carbon emissions across the district by 2040, then encouraging modal shift by residents in the District from private vehicles to greener modes will be required. In addition, as part of reaching the target of net zero carbon emissions from its own operations by 2030, the Council should consider the opportunities to transition its fleet from ICE to EV vehicles and other alternatives where possible, thereby setting a positive example. Within this context it is proposed that NHC, working with partners will seek to provide a range of initiatives to provide residents with realistic options for undertaking day-to-day travel, such that they offer a genuine and attractive choice instead of using the car, under the banner of 'Sustainable North Hertfordshire'.

The updated Climate Change Strategy has three strategic priorities under which actions sit. These are:

Taking Action – taking direct actions to reduce the Council's carbon emissions.

Enabling Carbon Savings – ensuring that our policies enable citizens and businesses to reduce their emissions.

Inspiring the Community – encouraging citizens and businesses to go further and faster in cutting carbon emissions.

Actions from the strategy that have been progressed or achieved and which relate to transport emissions and air quality include:

● Approval of changes to the Taxi and Private Hire Licensing Policy, including:

● No idling points system introduced to enforce against drivers who do not comply.

●Restricted use taxi ranks - when the infrastructure is in place, it is intended to restrict use of prime location taxi ranks to environmentally friendly vehicles.

● Require all new and replaced Council vehicles from 2028 to be ultralow emission vehicles.

● Engaged a consultant to help identify the Council's current carbon footprint (including Council fleet and the fleet of our key contractors).

● The Careline Team replaced their four diesel vehicles with electric vehicles.

● The Council's Community Safety Team replaced their vehicles with new, hybrid, Ultra Low Emission Vehicles

● Four new EV charging sockets installed in the Council Offices car park to support our transition to an electric fleet.

● Achieved a five-star rating from the ECO STARS Fleet Recognition Scheme. The scheme also helps operators manage their fleet more efficiently and our key contractors are also being helped by the scheme.

● Transport Forum meetings are now taking place to engage with the local community about public transport.

● Carried out a procurement exercise to appoint a contractor to install a number of EVCP across the Councils car parks later in 2023.

● Committed to using the Section 106 Sustainable Transport Funds the Council holds for measures that encourage cycling and walking as well as public transport.

● Made a successful submission for Hitchin to be part of the Intalink Feasibility studies. This is a collaboration between Hertfordshire County Council, bus rail operators, District and Borough councils in order to improve the bus network and user experience. This will see bus priority measures in Hitchin from 2022-2023.

● Lynx demand-responsive public transport now supporting the northern, and northeast, portion of the district.

● Letchworth Garden City and Royston have been approved for inclusion in the first round of the Sustainable Travel Towns Programme.

●The Sustainable Travel Towns (Letchworth Garden City and Royston) now have governance structures in place. Work continues to develop options for interventions – infrastructure and behaviour change measures – and potential funding sources. Options will then be sifted, through public engagement, consultation, and appraisal, to develop a delivery plan.

● Worked with Hertfordshire County Council to deliver new cycle stands in the district as part of the Department for Transport Emergency Active Travel Fund.

● The Council is working with Hertfordshire County Council to develop a Local Cycling and Walking Infrastructure Plan (LCWIP). The development of a LCWIP for the North Hertfordshire area commenced in December 2020 and is forecast for completion in Autumn 2023 following public consultation in late 2022. The LCWIP will be focusing on the five key urban centres of Hitchin, Letchworth Garden City, Baldock, Knebworth and Royston as well as the key corridors and feeder routes both within the settlements and between the neighbouring local authorities of Central Bedfordshire, Luton, Stevenage, Welwyn-Hatfield and Cambridgeshire.

The Climate Change Strategy also has the following proposed actions due for delivery between 2022 and 2027 which relate to transport emissions and air quality:

● In accordance with the Council's 2019 resolution, continue replacing all future operational vehicles leased or purchased by the council with Ultra Low Emission Vehicles (ULEVs) or zero emission vehicles until the last non-ULEV vehicle leases expire; and encourage contractors to adopt similar measures

● Reduce staff and Councillor business travel through use of Microsoft Teams and similar technologies as much as possible

● Reduce staff commuting through home working as much as practical

● Explore opportunities around low-emission refuse freighters

● Investigate low carbon solutions for the next waste contract which will commence in 2025

● Ensure our waste depot has the appropriate infrastructure to support low carbon solutions and our climate targets

● Work to develop and support policies that encourage electric vehicle use and other 'cleaner air' initiatives across the district, including:

◦ Providing more electric car charging facilities in our car parks

◦ Exploring the possibility of making it cheaper for zero emission vehicles to use Council car parks

◦ Working with Hertfordshire County Council to improve the provision of on-street Electric Vehicle (EV) charging

◦ Exploring the opportunities for a holistic approach to a town-wide Electric Vehicle strategy which will include all users and operators, both public and private

◦ Working with other public and private entities/partners to improve provision of EV charging

◦ Progressing the implementation of a better cycle network in North Herts, linking the district and beyond

◦ Working with the relevant portfolio holders to prepare an annual Electric Vehicle Action Plan

● Further to the requirement for all new and replaced taxi vehicles to be ultra-low emissions from 2028, explore how the Council can support transitions to low emission vehicles before this date and to zero emission vehicles when the necessary infrastructure is in place

● Ensure that masterplans and planning applications for new development are designed around streets and routes for active travel (rather than cars) and create walkable neighbourhoods

● Enable residents to assess their carbon emissions, comparing them with the district and best practice

● Encourage residents to make behaviour changes by highlighting positive actions that can be taken, and informing them of more environmentally friendly options

● Encourage alternative models of working to reduce commuting levels across the district

During 2022 NHDC has engaged on the following:

- Engaging with Government Grant making body OZEV, EST Energy Savings Trust, and UKPN, the Power Network provider.
- Engaging with Hertfordshire County Council and other Hertfordshire authorities in contributing towards the preparation of a county wide EV Strategy
- Joined a Local Authority Procurement Framework for Electric Vehicle Charging Infrastructure EVCI and undertook a procurement exercise to appoint a contractor for the supply of additional electric vehicle charging infrastructure in Council Car Parks in 4 key towns
- Launched the EcoStars Programme, promoting the uptake of Ultra Low Emission Vehicles
- The Herts & Bedfordshire Air Quality Forum
- The Public Health Board at HCC

An ECO Stars Scheme was successfully piloted in the North Hertfordshire District Council (NHDC) area in 2022.
During the pilot scheme period, 36 businesses were identified that were already members of the scheme through earlier recruitment initiatives across the UK. These businesses have operated with the benefits of emissions reducing operational advice, provided at the time of joining a scheme.
During the pilot delivery of the scheme:10 new members were recruited including the council's own fleet, its immediate supply chain, businesses in the two targeted industrial sites (Wilbury Way/Wallace Way and Bury Mead Road) and some operating in the wider council area. At least five additional businesses were identified as potential members; but would require additional resource to encourage to join the scheme than the pilot period allowed.
Through modelling the emissions savings that ECO Stars membership can provide, improvements to local air quality and carbon emissions, with positive links to Public Health[7], were demonstrated.
Qualitative research with businesses in the two targeted industrial estates demonstrated a mix of levels of adoption and preparation for the take up of light commercial EVs. Those businesses that had made transition to EVs had done so with company cars. In these instances, home charging was the method employed to charge vehicles. A number of the business had their vehicles managed from a central location outside the council geographical area. Therefore, the decision process for transition to EVs would need further investigation. There was not an appetite to consider centralised charging facilities.

The NHC Local Plan adopted in November 2022 includes commitments to address climate change within the vision statement which highlights important links with air quality plans to reduce transport emissions, particularly from private transport:

- *The District will play its part in addressing climate change by improving opportunities for travelling by public transport, walking and cycling, using natural resources more efficiently, reducing the demand for water, securing high quality sustainable design and managing the risk of flooding.*

Further links between managing transport emissions and improving air quality are now embedded within the Local Transport Strategy for NHC, where it states:

- *The focus should be on increasing the use of sustainable modes. A general increase in highway capacity into and through the towns is not recommended, the exception being where junction improvements can reduce AQMA issues without significantly increasing traffic through the town, or where they would have a more strategic function. The focus should instead be on managing the networks,*

[7] https://laqm.defra.gov.uk/air-quality/guidance/public-health/

smoothing flows, reducing speeds in the towns and providing better facilities for walking, cycling and buses.

[Ref: NHDC Transport Strategy Section 5.9[ii]]

The following Local Plan policies: -

- Policy SP6: Sustainable Transport seeks to improve and promote the use of sustainable transport modes across the District and within new developments.
- Policy D4: Air Quality refers to the requirement for air pollution impact assessment to be undertaken as part of any significant new development and its likely impacts on road traffic emissions,

Conclusions and Priorities

Air Quality in North Hertfordshire continues to improve with no exceedances of air quality objectives within the two Hitchin AQMAs at Stevenage Road and Payne's Park.

The Stevenage Road AQMA and the Payne's Park AQMA are recommended for continued monitoring so that the impacts of:

- Post Covid return to 'normal'.
- Construction of new dwellings and employment areas as a result of our own and Stevenage's Local Plans can be fully assessed as sites will directly impact upon traffic movements in the two AQMAs; and
- The significant short-, medium- and long-term expansion plans for London Luton Airport can be fully assessed as the two AQMAs are on the amin access route to the airport from the A1M.

There remain no other locations where air quality objectives are being breached within the District, but the challenges of housing and associated growth in infrastructure, and potential for expansion at Luton Airport continue to provide challenges to the management of the local road transport network.

The future priorities for NHC over the coming year are to continue to deliver sustainable programmes that address both air quality and climate change, particularly in relation to:

- Engaging with key stakeholders throughout NHC to promote sustainable transport, particularly ULEVs and EVs across the district by promoting measures within Council fleets as an example of good practice

- Delivering a high-profile programme for extending the network of private and public EV charging facilities across the district, following the completion of the Council's EV Strategy
- Promoting alternatives to use of private motor vehicles, including walking and cycling initiatives
- Promoting high quality ULEV public transport fleets
- Promoting travel plans and workplace travel plans in partnership with Hertfordshire County Council, to prioritise sustainable transport and engage with the public in making smart travel choices.
- Continuing the EcoStars programme, designed to promote the uptake of Low Emission vehicles and fleets within local businesses and industry.

Local Engagement and How to get Involved

The potential for the residents and businesses of North Hertfordshire to have a positive impact on air quality is considerable by choosing, where practical, to travel using:

- public transport
- car sharing / car clubs including e-car clubs
- more sustainable private modes of transport (i.e. not petrol or diesel engine vehicles), particularly electric vehicles
- more modern models of petrol and diesel engine vehicles, which emit lower levels of pollution
- walking or cycling

During 2020 the Council has already sought residents' opinions regarding the development of the EV strategy.

During 2021 the Council together with HCC sought local resident views on the preparation of the Cycling and Walking Infrastructure Plan through online and drop-in workshops. The Council together with HCC also undertook a formal public consultation exercise on the draft LCWIP in late 2022 through online and face to face officer engagement sessions.

Potentially useful sources of further information include:

https://www.goultralow.com/ = Central Government website about low emission vehicles

https://www.zap-map.com/live/ = Locations of EV charging points across UK

http://www.hertsdirect.org/services/transtreets/ltplive/ = HCC Local Transport Plan

In addition, the Hertfordshire and Bedfordshire Air Pollution Notification System is still operational.

By signing up for free at https://www.airqualityengland.co.uk/local-authority/knr-subscription the public are notified in advance of periods of moderate, high, or very high air pollution in North Hertfordshire. It is hoped that this will increase awareness and encourage behaviours that have a lower adverse impact on local air quality as well as enabling those that are particularly vulnerable to poor air quality to take measures to avoid or mitigate its negative impacts on their health.

Local Responsibilities and Commitment

This ASR was prepared by the Environmental Protection Team of North Hertfordshire Council with the support and agreement of the following officers and departments:

List officers/departments involved in the preparation of the ASR

Climate and Sustainability Officer Group (CSOG), NHC

Policy & Strategy Team Leader, NHC

Strategic Infrastructure & Projects Manager, NHC

Senior Transport & Policy Officer, NHC

Active and Safe Travel Team, Environment & Transport, Herts County Council

Highways Strategy & Implementation, Environment & Transport, Herts County Council

This ASR has been approved by:

Service Director- Regulatory, in consultation with the relevant Executive Member and Deputy for Housing and Environmental Health.

Councillor Sean Prendergast Executive Member for Housing and Environmental Health

Councillor Dave Winstanley Deputy Executive Member for Housing and Environmental Health

This ASR has not been signed off by a Director of Public Health.

If you have any comments on this ASR, please send them to Environmental Health at:

Address

North Hertfordshire Council

Gernon Road

Letchworth Garden City

Hertfordshire

SG6 3JF

Telephone: 01462 474000

Email: env.health@north-herts.gov.uk

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1 Local Air Quality Management

This report provides an overview of air quality in North Hertfordshire during 2022. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995), as amended by the Environment Act (2021), and the relevant Policy and Technical Guidance documents.

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where an exceedance is considered likely the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in order to achieve and maintain the objectives and the dates by which each measure will be carried out. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by North Hertfordshire Council to improve air quality and any progress that has been made.

The statutory air quality objectives applicable to LAQM in England are presented in Table E.1.

2 Actions to Improve Air Quality

Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority should prepare an Air Quality Action Plan (AQAP) within 18 months. The AQAP should specify how air quality targets will be achieved and maintained and provide dates by which measures will be carried out.

A summary of AQMAs declared by North Hertfordshire can be found in Table 2.1. The table presents a description of the two AQMA(s) that are currently designated within North Hertfordshire.

Appendix D: Map(s) of Monitoring Locations and AQMAs provides maps of AQMAs and also the air quality monitoring locations in relation to the AQMAs. The air quality objectives pertinent to the current AQMA designations are as follows:

- NO_2 annual mean

We propose to continue to monitor both AQMAs at Stevenage Road, Hitchin and Payne's Park Hitchin (see monitoring section).

The two AQMAs within NHDC are in Hitchin, on sections of the A602.

Stevenage Road AQMA (Declared June 2012)

- We propose to continue monitoring this AQMA in 2023-4.

Payne's Park AQMA (Declared January 2017)

- We propose to continue monitoring this AQMA in 2023-4

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
AQMA 1 Stevenage Road HITCHIN	29th June 2012	NO2 Annual Mean	An area encompassing a number of residential properties fronting & located on the south side of Stevenage Road (A602)	NO	41.8µg/m3	31ug/m3	6 years	Joint Action Plan Stevenage Road & Payne's Park, Hitchin AQMAs Jan-18	https://www.north-herts.gov.uk/home/environmental-health/pollution/air-quality/air-quality-management-areas-north-hertfordshire
AQMA 2 Payne's Park HITCHIN	9th January 2017	NO2 Annual Mean	An area encompassing one residential property fronting & located on the west side of Park Way (A602) at the Payne's Park roundabout	NO	44.5µg/m3	29.5/m3**	4 years	Joint Action Plan Stevenage Road & Payne's Park, Hitchin AQMAs Jan-18	https://www.north-herts.gov.uk/home/environmental-health/pollution/air-quality/air-quality-management-areas-north-hertfordshire

☒ **NHDC confirm the information on UK-Air regarding their AQMA(s) is up to date.**

☒ **NHDC confirm that all current AQAPs have been submitted to Defra.**

Progress and Impact of Measures to address Air Quality in North Hertfordshire

Defra's appraisal of last year's ASR concluded the conclusions reached are acceptable for all sources and pollutants. Following the completion of this report, North Hertfordshire District Council should submit an Annual Status Report in 2023.

There were no significant comments recorded, requiring further attention.

North Hertfordshire District Council (NHDC) has taken forward a number of direct measures during the current reporting year of 2022 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. 23 measures are included within Table 2.2, with the type of measure and the progress NHDC have made during the reporting year of 2022 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.2.

More detail on these measures can be found in the Action Plan.

The Climate Change Strategy 2022-2027 remains a key driver for actions that will influence emissions reductions and contribute to improved air quality.

The recently adopted North Hertfordshire Local Plan 2011-2031 contributes by supporting initiatives for walking and cycling and promoting sustainable transport systems.

The Hertfordshire EV Charging Strategy will promote the continued procurement of Electric Vehicle Charging Infrastructure for on-street charging.

The ongoing work of the Sustainable Travel Towns Programme in Letchworth and Royston aims to identify and deliver programmes to promote sustainable transport modes.

Hertfordshire County Council initiated the Sustainable Travel Town programme, which started in Royston and Letchworth in 2022. The initial stages involve drawing up a list of schemes to be progressed and cover measures to address data collection, behaviour change, key schemes including wide ranging Travel Plans (for Schools, Business, Supermarkets, Railway Station), Cycle initiatives, promotional initiatives, active travel infrastructure schemes, bus & rail improvements, town centre traffic and parking management review, EV charging provision.

The outline plans for Royston can be viewed here.

Progress on active travel projects is set out here:
Improving walking and cycling across Hertfordshire (Active Travel Fund) | Hertfordshire County Council

There are currently 12 schools in Hitchin that are registered with Modeshift STARS. 5 of these schools are actively working on their travel plans. 4 of these are holding a Good Travel Plan accreditation (Bronze) Codicote, Offley, William Ransom and Wymondley.

For North Herts there are 21 schools registered with Modeshift STARS.15 of these are actively working on their travel plans. 8 of these are holding an accreditation. Good Travel Plan accreditation (Bronze) have been awarded to: Ashwell, Hillshott Infant and Knebworth. St Thomas More are holding an Approved Travel Plan accreditation (Green).

Key completed measures are:

- Completion of 1 year of the EcoStars Programme following engagement with businesses in Hitchin Industrial Estate. Promoted dialogue with business users in Hitchin on uptake of ULEVs.
- During the pilot delivery of the scheme:10 new members were recruited including the council's own fleet, its immediate supply chain, businesses in the two targeted industrial sites (Wilbury Way/Wallace Way and Bury Mead Road) and some operating in the wider council area. At least five additional businesses were identified as potential members.
- Local Cycling and Walking Infrastructure Plan. Hertfordshire County Council and North Herts Council are working in partnership on the LCWIP. Consultation on the draft plan was completed in November 2022. Approx. It is proposed that the LCWIP will be taken through North Herts panel process in summer 2023 and then HCC will process for adoption
- For further information (including the document) here is the LCWIP website Local cycling and walking infrastructure plans (LCWIPs) | Hertfordshire County Council
- The tender exercise, and selection of a supplier for the procurement of additional Electric Vehicle Charging Infrastructure in Council Car Parks in Letchworth, Hitchin, Baldock and Royston has been completed. Negotiations are ongoing with the

Energy Savings Trust and the Government Department (OZEV) in relation to a grant application to part fund the proposed EV charging Infrastructure Programme.

- Measures introduced under the Climate Change Strategy:
    - Taxi & Private Hire Licensing changes to reduce idling and promote ultra-low emission vehicles
    - Promote the uptake of ULEV's in the Council's Fleet
    - Four new EV charge points dedicated for Council vehicle use
- Enable Hitchin to join the Intalink Feasibility Studies programme for improving the bus network.
- Developing programmes in Royston and Letchworth under the Sustainable Towns Programme.

North Hertfordshire Council expects the following measures to be completed over the course of the next reporting year:

- Continuation in the development of schemes in support of the Sustainable Travel Towns Programme for Royston and Letchworth. Develop options for interventions – infrastructure and behaviour change measures – and potential funding sources. Options will then be sifted, through public engagement, consultation, and appraisal, to develop a delivery plan.
- Approval of the Local Cycling and Walking Infrastructure Plan by North Herts Council, and adoption by Herts County Council. Developing Plans for an improved cycle network District and County wide.
- Completion of the procurement programme for EV Charging Infrastructure in Council Car Parks in Letchworth, Hitchin, Baldock and Royston
- Continue to deliver a programme of further introductions of Ultra Low Emission Vehicles (ULEVs) into all areas of the Council vehicle fleet.
- Begin to develop joint programmes with Hertfordshire County Council, and Local Districts for the procurement of on-street charging for electric vehicles under the government funded LEVI Programme.

North Hertfordshire District Council worked to implement these measures in partnership with the following stakeholders during 2022:

- Hertfordshire County Council;
- Local business within Hitchin.

The principal challenges and barriers to implementation that North Hertfordshire Council anticipates facing are

- Uncertainties surrounding funding for key programmes

Progress on the following measures has been slower than expected due to:

- EV charging Infrastructure Procurement has involved a process that has required a wide level of engagement involving legal and procurement teams, in addition to engaging with external agencies involved in grant funding.

North Hertfordshire Council anticipates that the measures stated above and in Table 2.2 will continue to achieve compliance in AQMA 1 and AQMA2.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
1	Intro to & uptake of ECO Stars scheme in Hitchin industrial estates	Freight and Delivery Management	Delivery & Service Plans / Route Management Plans	2021	2022	Local Authority Environmental Health, Local Authority Transport Dept.	NHDC locally financed	NO	Funded	£10k - 50k	In progress Started February 2021	Reductions in emissions due to take up of ULEVs	Number of companies signed up	1 year programme completed January 2022	None
2	Intro to & uptake of ECO Stars scheme in Hitchin Town Centre	Freight and Delivery Management	Delivery & Service Plans / Route Management Plans	Postponed for the short-medium term	Not actioned	Local Authority Environmental Health, Local Authority Transport Dept.	None	NO	Not Funded	£10k - 50k	On hold	Reductions in emissions due to take up of ULEVs	Number of companies signed up	Option for extension if measure 1 successful	Funding
3	Engage with & promote school travel plans in Hitchin schools	Promoting Travel Alternatives	School Travel Plans	2019	2024	Hertfordshire County Council	LA internally financed	NO	Partially Funded	< £10k	Ongoing. Road safety Officers promote Mode shift Stars travel plans and road safety initiatives across the County. Active promotion of: Walk to school week; Park & Stride and anti-idling.	Reduction in private car journeys to school & associated reduction in vehicle emissions	Number of schools with updated Travel Plans & proactively engaging with travel planning	There are currently 12 schools in North Herts registered with Modeshift STARS. 8 of these are holding an accredited travel plan. Bronze accreditation – for a Good Travel Plan: Ashwell Primary Codicote Primary Hillshott Infant & Nursery Knebworth Offley St Thomas More William Ransom Wymondley JMI	Work with Active & Safer Travel Team & contractors & schools to optimise existing or introduce new plans Staff time at both HCC and NHDC Environmental Protection Team to prepare & then implement work programme.
4	Promotion of walking & cycling for commuting in North Hertfordshire	Promoting Travel Alternatives	Promotion of walking and cycling	2019	LCWIP is currently due for adoption in 2023	NHDC Transport Policy Officer &HCC's Active & Safer Travel Team	Local Authority , Funding: Cost neutral relies on existing staff resources	NO	Not Funded	£10k - 50k	In progress to adoption	Not defined	Not defined	Consultation on the draft plan was completed in November 2022. It is proposed that the LCWIP will be taken through North Herts panel process in summer 2023 and then HCC will process for adoption	Local Urban Transport Plans outline detailed schemes for improving cycling and walking infrastructure across major urban districts.
14	Baseline survey state of cycling provision in Hitchin	Transport Planning and Infrastructure	Cycle network	2018	Expected to be addressed by LCWIP, (Local Cycling and Walking Infrastructure Plan) in partnership with HCC for the District	North Hertfordshire Environmental Protection Team & Hertfordshire County Council	Not defined	NO	Not Funded	< £10k	Implementation	Reduced emissions due to modal shift	Numbers of public cycle parking, cycle lanes, cycle hire schemes	See (4) above: Actioned from Sept 2021. A walking and cycling network review of the Hitchin area was part of the LCWIP process	None
5	Increasing/ improving publicly available re-charging for Electric Vehicles (EV) in car parks	Promoting Low Emission Transport	Procuring alternative refuelling infrastructure	2020-1	2025	North Hertfordshire Environmental Protection Team	Combined OZEV ORCS with supplier contribution	NO	Application submitted	£20k - £100k	Procurement via Kent EVCI Framework	Reductions in emissions due to take up of ULEVs	Number of EV chargepoints in NHDC car parks	Awaiting outcome of OZEV application	Funding and contractual issues for procurement
6	Increasing/ improving publicly available re-charging for on-street EV	Promoting Low Emission Transport	Procuring alternative refuelling infrastructure	Planned 2020-21	2032	Hertfordshire County Council	None	NO	Not Funded	£50k - £100k	Aborted	Reductions in emissions due to take up of ULEVs	Number of on-street EV chargepoints	HCC are developing a Herts EV strategy, in conjunction with LEVI fund for County wide procurement	Funding and procurement

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
7	Increasing private availability of recharging infrastructure for Electric Vehicles	Promoting Low Emission Transport	Procuring alternative refuelling infrastructure	2018 onwards	2032	North Hertfordshire Planning Department and Environmental Protection Team	Developer funded	NO	Active	£100k - £500k	All new residential developments with off-street parking are required to provide EV charging	Reductions in emissions due to take up of ULEVs	Number of EV chargepoints from private sector	Ongoing	Funding, and ongoing risk to private sector
8	Dedicated parking bays for EVs at charging points	Promoting Low Emission Transport	Priority parking for LEV's	Ongoing	2032	North Hertfordshire Environmental Protection Team and Strategic Planning Team	NHDC	NO	Partially Funded	< £10k	Implementation	Reductions in emissions due to take up of ULEVs	Usage stats for charge points	Standard conditions available & supported by Local Plan Policy & guidance document. Planning permissions being granted with EV infrastructure conditions in place	Significant barriers exist that require collaborative working & experience sharing to overcome. These include financial viability, civil engineering, accessibility & enforcement & health & safety issues
9	NHDC fleet review diesel to low emission vehicles	Promoting Low Emission Transport	Company Vehicle Procurement - Prioritising uptake of low emission vehicles	2019 and ongoing	2022 (ULEVs)	North Hertfordshire District Council	NHDC	NO	Partially covered by reduced fuel costs, remainder subject to annual budget growth bids	£10-£20K	Implementation	Reductions in emissions due to take up of ULEVs	Numbers of ULEV as part of Council Fleet	2 Leased vehicles replaced with ULEVs in 20212 more leased EV vehicles on order for Dec 2021 Quotation being sought for 3 more leased EV vehicles for replacement in 2022	Lease expiry, range and cost. Availability of EV charging points within Council car parks across the district.
10	Establish legal status of anti-idling provision (S.42 Road Traffic Act 1988) & application by NHDC	Traffic Management	Anti-idling enforcement	Not actioned	N/A	North Hertfordshire Environmental Protection Team and Strategic Planning Team	NHDC	NO	Not defined	Not defined	Not Actioned	Reduction in emissions due to idling	N/A	No action	Local budget to enable enforcement actions
11	Review on-street parking designation & enforcement at Stevenage Road & Upper Tilehouse Street	Traffic Management	Parking Enforcement on Highway	2019	2020-21	North Hertfordshire Environmental Protection Team and Strategic Planning Team	Not defined	No	Not defined	Not defined	Not Actioned	Changes to parking controls & enforcement activity. Reduced queuing	Not defined	Not progressed due to lack of reaching a suitable consensus amongst residents	Not defined
12	Hitchin Industrial Estate Connectivity/ Relief Road	Transport Planning and Infrastructure	Strategic Highway Improvement	Not yet actioned	Not Actioned	Hertfordshire County Council	Not defined	No	Not defined	Not defined	Included in the North Hertfordshire Growth and Transport Plan	Reduction in numbers of HGV passing through AQMAs	Numbers of HGV passing through AQMAs	The A505 Corridor Study has produced a Stage 3 report, for which an addendum is being written to add provide contemporary context before it is published (the study was started pre-COVID). It identifies challenges and opportunities, primarily, to afford buses greater priority in moving east-west along the A505 corridor, but does not recommend any specific interventions.	Subject to further investigation by HCC, and funding options to be considered.

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
13	Engage with Herts CC on development of LTP4 & Local Growth & Transport Plan	Traffic Management	Strategic highway improvements, Re-prioritising Road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2017	2022	North Hertfordshire Environmental Protection Team via Hertfordshire County Council	LTP = 2018/19 & GTP = 2019	No	Via LTP/GTP	Not defined	Fifteen packages of schemes and projects, concerning areas in North Central Hertfordshire, were identified in GTP implementation paper May 2022	Not defined	Not defined	Consultation responses have strengthened presence of Air Quality as an issue and the importance of mitigation and benefits of specific projects including some relevant to Hitchin in the LTP. North Central Hertfordshire area GTP was adopted	NHDC is only able to influence decision making by way of representation and provision of data. NHDC projects may not be prioritised on a county wide basis.
15	Workplace & School based car sharing including consideration of preferential parking	Alternatives to private vehicle use	Car & lift sharing schemes	2019	Ongoing	North Hertfordshire Environmental Protection with Hertfordshire County Council Travel Planning Team	Not defined	No	Not defined	Not defined	Informal car share for schools. Workplace and Residential Carshare promoted in Travel Plan Guidance	Not defined	Engagement by schools and businesses	Schools encouraged to consider promotion of car sharing between parents/carers where practicable. Linked directly to Measure 3	Lift share no longer promoted at County level due to safeguarding issues. Carsharing not actively promoted.
16	Car clubs for new developments	Alternatives to private vehicle use	Car & lift sharing schemes	2018	Not defined	North Hertfordshire Environmental Protection with Hertfordshire County Council Travel Planning Team	Developer contributions from Planning Conditions	No	Not defined	Not defined	Ongoing	Not defined	Prevalence of car clubs in North Herts & number of Travel Plans with Car Clubs specified by condition	Standard conditions available & supported by Local Plan Policy & guidance document. Planning permissions being granted with Travel Plans in place	Co-operation from developers
17	Participate in National Clean Air Day	Public Information	Via the Internet	Ongoing annual event	Ongoing	Hertfordshire County Council and North Hertfordshire District Council	Funded by Herts and Beds air Quality Group of Local Authorities	No	Ongoing	Not defined	Focus on uptake of Air Pollution Notification System	Not defined	Increased uptake of the Air Pollution Notification System	Ongoing since 2019	Restarting in 2023
18	Air Quality Notification System	Public Information	Air Pollution Alert	2018	Ongoing	North Hertfordshire DC, other Herts local authorities & Herts County Council Public Health	LAs in Herts, HCC, Public Health	No	Ongoing	Set-up cost £1122.73 annual cost £113.64	Ongoing	Not defined	Number of participants in scheme. 116 signed up	AQ alert launched 2019. Consideration of future projects to increase uptake with communications campaign.	Ability to get sign up will depend on access to vulnerable and interested groups and therefore publicity and support from partners.
19	Reducing emissions from public transport	Vehicle Fleet Efficiency	Enhanced Partnership Plan Objectives: Prioritising bus and coach services in traffic Upgrading Infrastructure Integration of the bus network Smarter use of data and information	No progress	None	North Hertfordshire District Council & Herts CC & bus companies	Not defined	No	Not defined	Not defined	Intalink Partnership adopted in April 2023	NO2 reduction of 0.009g/km per Euro 5 bus	Number of buses retrofitted	Intalink Enhanced Partnership between HCC, Districts and public transport operators, managed by HCC https://www.hertfordshire.gov.uk/media-library/documents/highways/transport-planning/local-transport-plan-live/intalink-enhanced-partnership-plan-and-scheme-feb-2020.pdf	Previous voluntary partnership replaced by Enhanced Partnership Plan and Scheme for Hertfordshire

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
20	Engage with schools to raise awareness of air pollution	Public Information	Other	2020 onwards	Ongoing	North Hertfordshire in liaison with Herts CC Active & Safer Travel Team	Not defined	No	Not defined	Not defined	Ongoing	Not defined	Number of schools in Hitchin utilising the Air Pollution teaching toolkit	3 additional schools joined Anti – Idling Campaign. 3 schools taken part in Sustrans Big Walk and Wheel. 12 registered for our Walk to School Week and Clean Air Day campaigns,	Toolkit is available needs to be effectively publicised within North Hertfordshire
21	Local Plan Policy and Air Quality Planning Guidance Document	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Delivered 2018	2018	North Hertfordshire's Environmental Protection and Planning Teams	NHDC	No	Completed	Not defined	Completed, in active use	Not defined	Recommendations for developers to include EV charging	Ongoing. It is actively used for all relevant planning applications	Planning consultations need to be continually responded to, to ensure developments are appropriate and mitigation is implemented
22	Herts & Beds Air Quality Forum including Public Health, Transport Planners & Development Control representation	Policy Guidance and Development Control	Regional Groups Co-ordinating programmes to develop Area wide Strategies to reduce emissions and improve air quality	Ongoing	Ongoing	Hertfordshire and Bedfordshire Local Authorities	NHDC	No	Ongoing from local budgets	Not defined	Ongoing	Not defined	County-wide initiatives and joint working on bids and projects	Active & well-established Forum, regular meetings.	Participation from Local Authority partners with County Council

$PM_{2.5}$ – Local Authority Approach to Reducing Emissions and/or Concentrations

As detailed in Policy Guidance LAQM.PG22 (Chapter 8), local authorities are expected to work towards reducing emissions and/or concentrations of $PM_{2.5}$ (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that $PM_{2.5}$ has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

- Continuation of the effective partnership working arrangements with Hertfordshire County Council Public Health that have been in place since 2014/15. This has occurred as a result of three key drivers:
    - Increased evidence and awareness of the harm from exposure to $PM_{2.5}$
    - The transfer of central government funding from a central public health body to County Councils
    - The existence of the Public Health Outcome Indicator (PHOI) for the fraction of mortality attributable to particulate air pollution measured as fine particulate matter $PM_{2.5}$ (PHOI 3.01).

The outcomes of this work resulted in the formation of an Air Quality (Public Health) Planning Group. The group now operates as a task and finish group for particular air quality projects with the routine engagement and information sharing taking place within the meetings of the Hertfordshire and Bedfordshire Air Quality Forum.

- Access to Public Health funding for each of the ten Hertfordshire Local Authorities enabled North Hertfordshire District Council to purchase and establish a $PM_{2.5}$ Beta Attenuation Measurement (BAM) Real-Time Analyser in its area. The analyser is located within the Stevenage Road, Hitchin Air Quality Management Area in the expectation that this location represents a worst-case measurement of $PM_{2.5}$ concentrations within North Hertfordshire.

2022 represents the sixth full year of $PM_{2.5}$ monitoring within North Hertfordshire and the data are included within this report.

The provision of monitoring equipment was considered a priority because it was identified that there was no actual baseline data available within Hertfordshire. So, the validity of the

modelled value for the PHOI for Hertfordshire and its Local Authorities could not be judged nor subsequent changes measured.

- This report includes the latest recorded PM2.5 data monitored in North Hertfordshire in Table A8

North Hertfordshire District Council has not yet identified any measures targeted specifically at reducing $PM_{2.5}$ and it is considered unlikely that any such measures will be identified over the coming years. Instead, and in line with Technical Guidance LAQM.TG22 it is anticipated that:

- Measures to reduce emissions of NOx by encouraging a move away from internal combustion engine vehicles to ultra-low emission vehicles (ULEV) will reduce $PM_{2.5}$ emissions from exhausts
- Measures to reduce road travel altogether will reduce $PM_{2.5}$ emissions from brake and tyre wear and dust re-suspension.

The above is considered the most pragmatic and viable approach and it has also taken into account how North Hertfordshire ranks in terms of PHOI alongside other areas of Hertfordshire and Bedfordshire (Table 2.3).

North Hertfordshire District Council has Smoke Control Areas designated in Letchworth Garden City, which date from the 1960s.

3 Air Quality Monitoring Data and Comparison with Air Quality Objectives and National Compliance

This section sets out the monitoring undertaken within 2022 by North Hertfordshire Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2018 and 2022 to allow monitoring trends to be identified and discussed.

Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

North Hertfordshire Council undertook automatic (continuous) monitoring at 2 co-located sites during 2022.

Table A.1 in Appendix A shows the details of the automatic monitoring sites. This page presents automatic monitoring results for North Hertfordshire Council, with automatic monitoring results also available through the UK-Air website .

Maps showing the location of the monitoring sites are provided in Appendix D. Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C.

3.1.2 Non-Automatic Monitoring Sites

North Hertfordshire Council undertook non- automatic (i.e. passive) monitoring of NO_2 at 45 sites during 2022. Table A.2 in Appendix A presents the details of the non-automatic sites.

Maps showing the location of the monitoring sites are provided in Appendix D. Further details on Quality Assurance/Quality Control (QA/QC) for the diffusion tubes, including bias adjustments and any other adjustments applied (e.g. annualisation and/or distance correction), are included in Appendix C.

Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias, annualisation (where the annual mean data capture is below 75% and greater than 25%), and distance correction. Further details on adjustments are provided in Appendix C.

3.1.3 Nitrogen Dioxide (NO_2)

Table A.3 and Table A.4 in Appendix A compare the ratified and adjusted monitored NO_2 annual mean concentrations for the past five years with the air quality objective of 40µg/m^3. Note that the concentration data presented represents the concentration at the location of the monitoring site, following the application of bias adjustment and annualisation, as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

For diffusion tubes, the full 2022 dataset of monthly mean values is provided in Appendix B. Note that the concentration data presented in Table B.1 includes distance corrected values, only where relevant.

Table A.5 in Appendix A compares the ratified continuous monitored NO_2 hourly mean concentrations for the past five years with the air quality objective of 200µg/m^3, not to be exceeded more than 18 times per year.

The following figures F3.1 and F3.3 show trend data for AQMA monitoring sites without corrections for distance.

Figure 3.2 highlights the application of distance corrections as applied to the two monitoring sites in the Stevenage Road AQMA that are furthest from the roundabout.

Overall, within the AQMA, there are 6 monitoring points, one automatic site and 5 additional diffusion tube points. In 2022, all sites showed some increases, with results remaining significantly below objective levels, reflecting the increased traffic levels post pandemic.

When corrected for distance, there are no monitoring results within the Stevenage Road AQMA above, and no results 10% of the AQ objective.

On this basis continued monitoring for 2023 and 2024 is proposed as a monitoring baseline for future proposed developments.

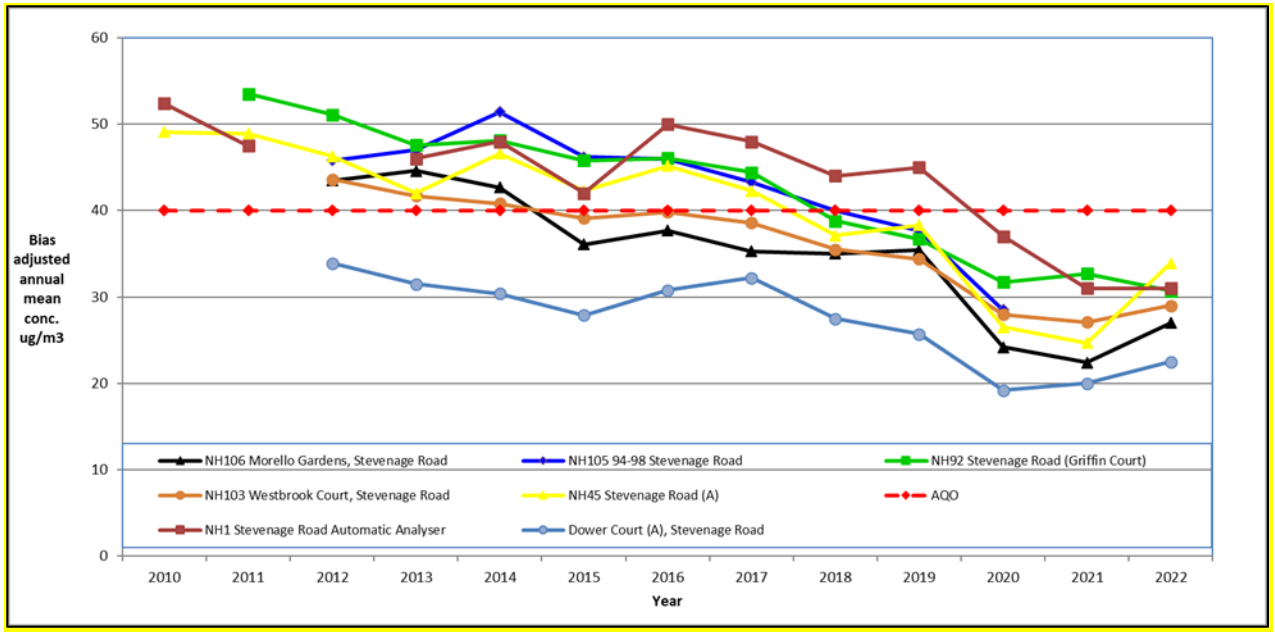


Figure 3.1: Trends in NO_2 concentrations at monitoring sites (all except NH106) located within the AQMA at Stevenage Road, Hitchin

The continued trend in reductions of monitored pollution levels at two sites, previously showing exceedances are highlighted in Figure 3.2 below. These results are now significantly below objective levels.

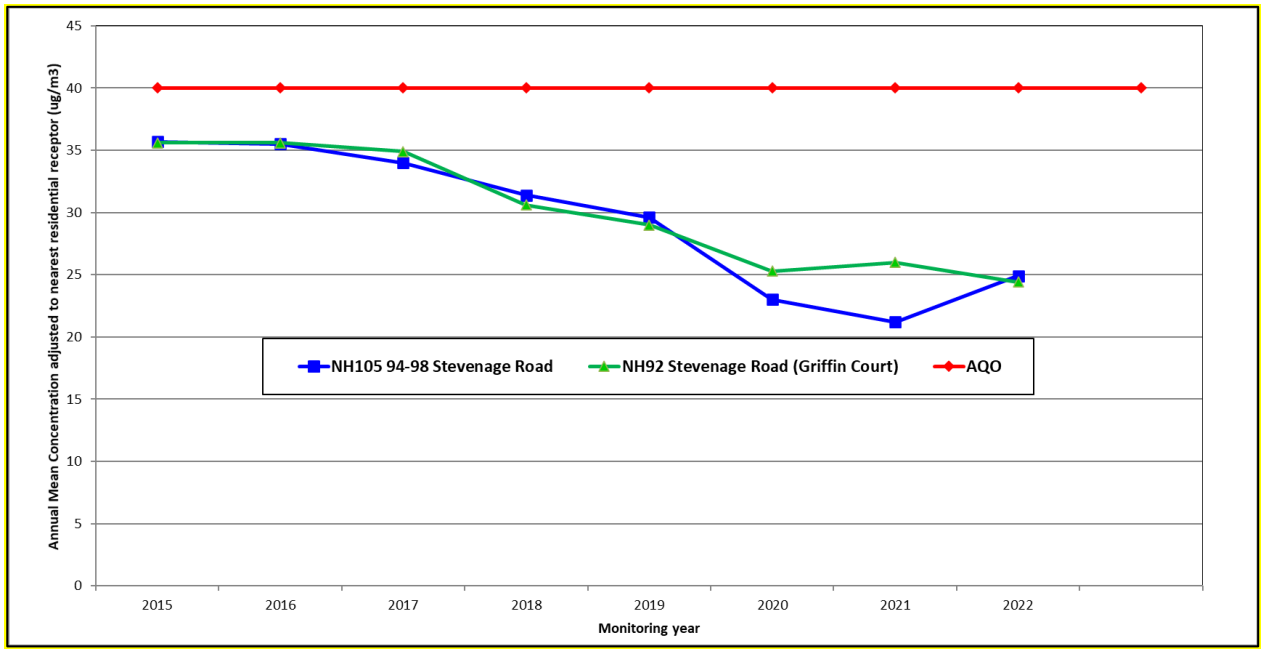


Figure 3.2: Trends in NO_2 concentrations monitored at NH105 and NH92 adjusted to be relevant to the nearest residential receptors

Figure 3.3 below, highlights trends for monitoring results within the Payne's Park AQMA up to 2022. The most recent results all highlight the trend of reductions in monitored levels

of pollution levels pre-pandemic, with increases post-pandemic linked to moderate increases in traffic levels.

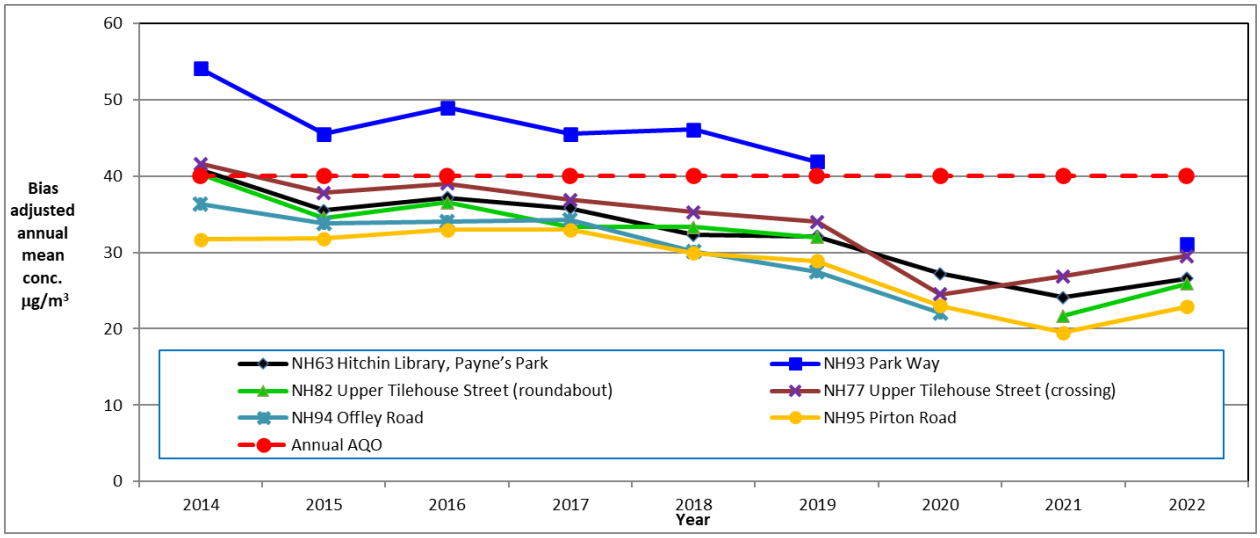


Figure 3.3: Trends in NO_2 concentrations at monitoring sites at Payne's Park, Hitchin

These results continue to confirm that pollution levels within this AQMA remain significantly below objective levels.

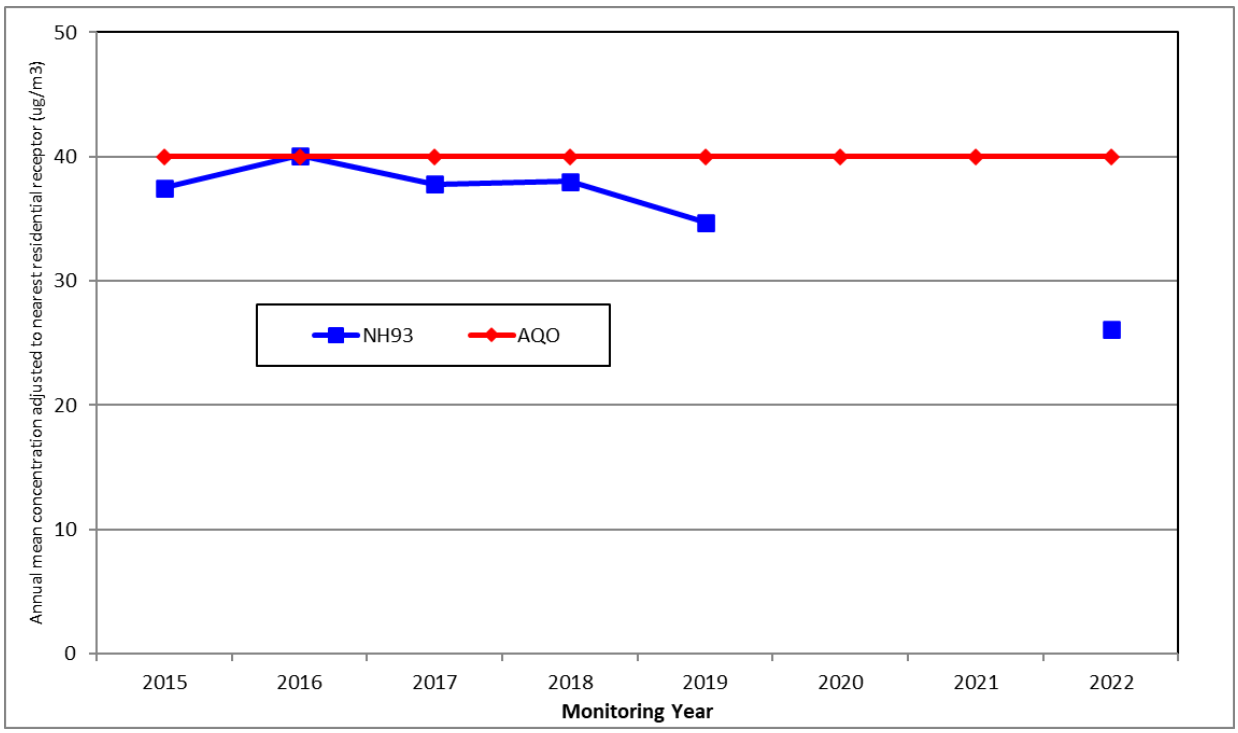


Figure 3.4: Trends in NO_2 concentrations monitored at NH93 adjusted to be relevant to the nearest residential receptor (41 Upper Tilehouse Street).

3.1.4 Particulate Matter (PM_{10})

Table A.6 in Appendix A: Monitoring Results compares the ratified and adjusted monitored PM_{10} annual mean concentrations for the past five years with the air quality objective of 40µg/m^3.

Table A.7 in Appendix A compares the ratified continuous monitored PM_{10} daily mean concentrations for the past five years with the air quality objective of 50µg/m^3, not to be exceeded more than 35 times per year.

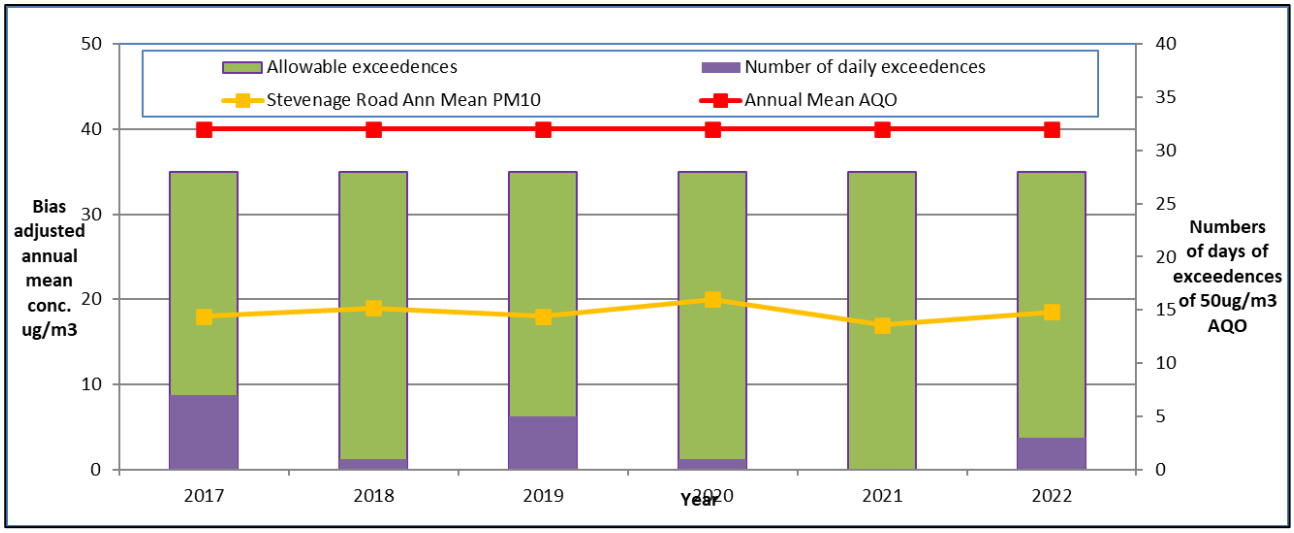


Figure 3.5: PM10 concentrations measured at Stevenage Road, Hitchin

2022 was the seventh full year of PM_{10} monitoring at the Stevenage Road location. The data from 2017 are displayed in Figure 3.5 and show that the mean average concentrations for all years were below the 40µg/m^3 AQO. The number of daily exceedences of the 50µg/m3 AQO are also shown in Figure 3.5 as displayed with the number of allowable exceedences in a calendar year, confirming there are no exceedances of any objectives for PM10, based upon results of continuous monitoring.

3.1.5 Particulate Matter ($PM_{2.5}$)

Table A.8 in Appendix A presents the ratified and adjusted monitored $PM_{2.5}$ annual mean concentrations for the past five years, all significantly below objective levels.

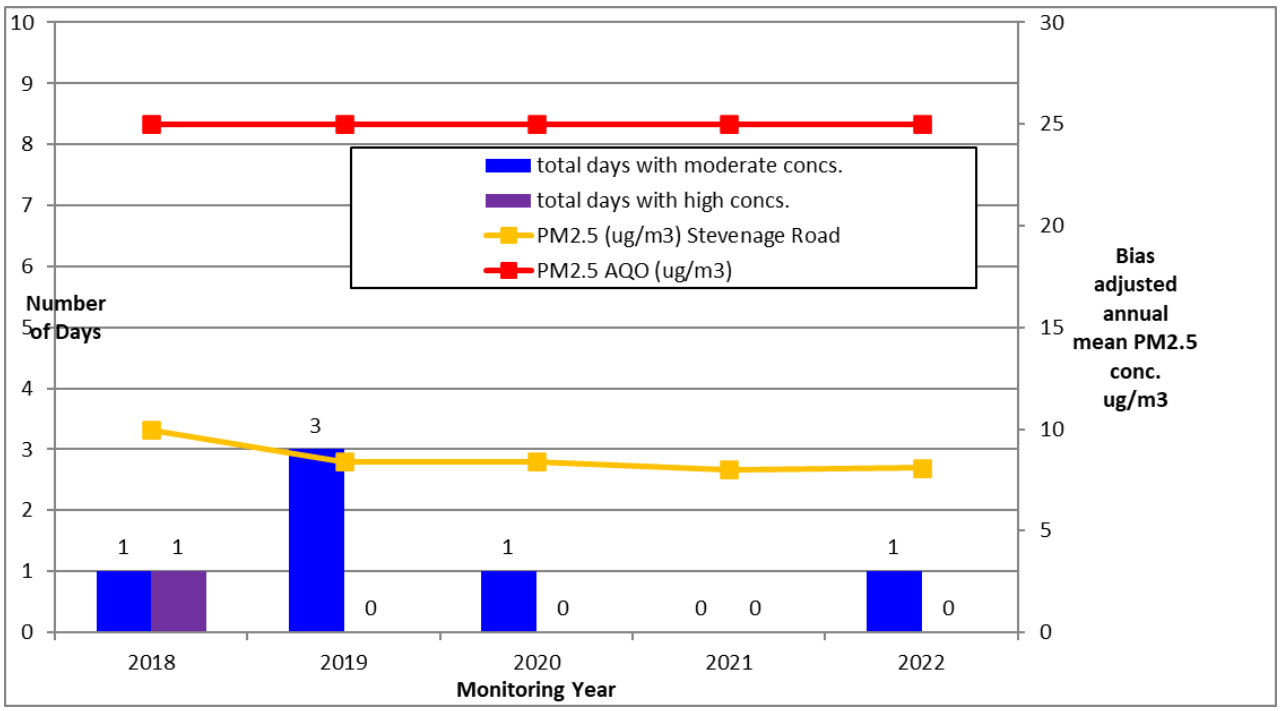


Figure 3.6: PM2.5 concentrations measured at Stevenage Road, Hitchin

2022 was the seventh full year of $PM_{2.5}$ monitoring at the Stevenage Road location. The data displayed in Figure 3.6 above show that the mean average concentrations for each year continue below the non-statutory target value of 25µg/m^3. The number of days when moderate and high (as defined by the Defra Daily Air Quality Index) concentrations of $PM_{2.5}$ were measured is also displayed in Figure 3.6. There is no limit or objective in place specifying how many, if any, days of exceedences of a given $PM_{2.5}$ concentration are allowed. The annual mean concentrations continue to exhibit a trend of falling values, significantly below objective levels.

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Inlet Height (m)
NH1	Stevenage Road NOx	Roadside	518740	228348	NO2	YES	Chemiluminescent	11	2	1.5
NH2	Stevenage Road PM	Roadside	518713	228349	PM10, PM2.5	YES	TEOM, BAM	19	2	1.5

Notes:

(1) 0m if the monitoring site is at a location of exposure (e.g. installed on the façade of a residential property).

(2) N/A if not applicable

Table A.2 – Details of Non-Automatic Monitoring Sites

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
NH06	Melbourn Road, Opposite Town Hall, Royston	Roadside	535906	240794	NO2		7.0	1.1		2.5
NH45	Stevenage Road A, Hitchin	Roadside	518708	228347	NO2	AQMA1	19.0	2.0		2.5
NH59	(NH04a) Clothall Road, Baldock	Roadside	524649	234061	NO2		11.0	3.0		2.5
NNH60	(NH13a) Willian Road, Hitchin	Roadside	519916	230099	NO2		29.0	1.1		2.5
NH61	(NH53a) Whitehorse Street, Baldock (nr town hall)	Roadside	524428	233882	NO2		35.0	2.0		2.5
NH63	(NH02a) Library Hitchin	Roadside	518160	229092	NO2	AQMA2	30.0	3.5		2.5
NH67	Cadwell Court, Hitchin	Roadside	519225	230553	NO2		12.0	2.0		2.5
NH127	64 Grove Road, Hitchin	Roadside	518821	229993	NO2		0.0	7.0		2.5
NH72	Opp Rose Crown, Whitehorse Street, Baldock	Roadside	524502	233948	NO2		27.0	2.0		2.5
NH103	Westbrook Court, Hitchin	Roadside	518773	228342	NO2	AQMA1	10.0	2.4		2.5
NH77	Upper Tilehouse Street, Hitchin (traffic lights)	Roadside	518006	229032	NO2	AQMA2	5.0	1.5		2.5
NH82	Upper Tilehouse Street, Nr Roundabout	Roadside	518129	229065	NO2	AQMA2	7.0	1.5		2.5

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
NH87	11 Stevenage Road, Hitchin	Roadside	518731	228362	NO2		0.0	15.0		2.5
NH88	Church St, Baldock (Opp. Town Hall)	Kerbside	524448	233898	NO2		13.0	0.5		2.5
NH89	London Road, Hitchin	Roadside	518706	228293	NO2		20.0	1.9		2.5
NH91	St John's Road, Hitchin	Roadside	518656	228406	NO2		5.0	7.9		2.5
NH92	Stevenage Road (Griffin), Hitchin	Roadside	518872	228305	NO2	AQMA1	5.0	2.0		2.5
NH93	Park Way, Hitchin	Roadside	518130	229036	NO2	AQMA2	3.0	1.6		2.5
NH94	Offley Road, Hitchin	Roadside	517915	228967	NO2		7.0	2.3		2.5
NH95	Pirton Road, Hitchin	Roadside	517886	228975	NO2		22.0	1.3		2.5
NH98	Walsworth/Radcliffe Road, Hitchin	Roadside	519080	229510	NO2		4.0	1.5		2.5
NH99	Nightingale Road, Hitchin	Roadside	518953	229786	NO2		5.0	1.7		2.5
NH108	Hitchin - Hermitage Road (97)	Roadside	518534	229302	NO2		3.0	0.8		2.5
NH104	Dower Court (A), Stevenage Road, Hitchin	Roadside	518757	228334	NO2	AQMA1	0.0	3.3		2.5
NH105	94-98 Stevenage Road, Hitchin	Roadside	519067	228255	NO2	AQMA1	7.0	3.5		2.5
NH106	Morello Gardens, Stevenage Road, Hitchin	Roadside	519250	228218	NO2		5.0	1.4		2.5

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
NH107	Whitehill Road, Hitchin	Roadside	518720	228335	NO2		26.0	2.3		2.5
NH114	Old Park Road, Hitchin (number 20)	Roadside	518150	229160	NO2	AQMA2	0.0	2.5		2.5
NH115	Old North Road, Royston	Roadside	535373	241466	NO2		9.0	1.0		2.5
NH116	6 Horseshoe, Park Street, Hitchin	Roadside	518492	228669	NO2		0.0	2.4		2.5
NH117	Hitchin - Fishponds Road	Roadside	518278	229752	NO2		0.0	3.3		2.5
NH119	High Street (127) Codicote	Roadside	521767	218110	NO2		0.4	1.1		2.5
NH120	High St, Barley	Roadside	539975	238521	NO2		0	1.3		2.5
NH121	1 Hadrians Way, Baldock	Roadside	523849	233497	NO2		5.0	11.0		2.5
NH122	29 Hopewell Rd, Baldock	Roadside	523917	233917	NO2		7.0	1.5		2.5
NH123	Dunkerley Ct, LGC	Roadside	522289	232985	NO2		0.0	5.3		2.5
NH124	82 Bedford Rd, LGC	Roadside	520967	233073	NO2		13.0	3.2		2.5
NH125	11 Luton Rd, Cockernhoe	Rural	512486	223251	NO2		9.0	3.0		2.5
NH128	55 Codicote High Street	Roadside	521497	218415	NO2		9.0	1.2		2.5
NH129	119 London Road, Knebworth	Roadside	525205	220142	NO2		1.5	2.3		2.5

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
NH131	The Clock House, Turnpike Lane, Ickleford	Kerbside	518215	231528	NO2		0.5	0.2		2.5
NH132	Opp Laurel Way, Arlesey Road, Ickleford	Roadside	518283	231366	NO2		20.0	1.5		2.5
NH133	George & Dragon, High Street, Graveley	Roadside	523124	227776	NO2		7.0	1.5		2.5
NH134	6 Bucks Head Cottages, Stevenage Rd, L.Wymondley	Roadside	521516	227449	NO2		10.0	3.5		2.5
NH110, NH111, NH112	Stevenage Road, AQ Analyser 3, Hitchin	Roadside	518740	228348	NO2	AQMA1	11.0	2.0	Yes	2.0

Notes:

(1) 0m if the monitoring site is at a location of exposure (e.g. installed on the façade of a residential property).

(2) N/A if not applicable.

Table A.3 – Annual Mean NO_2 Monitoring Results: Automatic Monitoring (µg/m^3)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
NH1	518740	228348	Roadside	90	90	44	45	37	31	31

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22**

☒ **Reported concentrations are those at the location of the monitoring site (annualised, as required), i.e. prior to any fall-off with distance correction**

Notes:

The annual mean concentrations are presented as µg/m^3.

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

All means have been "annualised" as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Table A.4 – Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2022 (%) [2]	2018	2019	2020	2021	2022
NH06	535906	240794	Roadside	65.8	65.8	24.6	24.8	21.7	20.5	27.4
NH45	518708	228347	Roadside	90.4	90.4	37.1	38.3	26.5	24.7	33.9
NH59	524649	234061	Roadside	92.0	92.0	26.2	23.4	18.5	18.8	19.7
NH60	519916	230099	Roadside	100.0	100.0	28.0	24.5	17.6	21.6	21.2
NH61	524428	233882	Roadside	100.0	100.0	27.2	26.8		25.8	26.5
NH63	518160	229092	Roadside	100.0	100.0	32.3	32.1	27.2	24.1	26.6
NH67	519225	230553	Roadside	100.0	100.0	23.7	23.5	20.0	19.3	20.8
NH127	518821	229993	Roadside	100.0	100.0	21.9	21.0		17.7	20.6
NH72	524502	233948	Roadside	100.0	100.0	27.5	26.8	24.2	20.5	21.5
NH103	518773	228342	Roadside	100.0	100.0	35.5	34.4	28.0	27.1	29.0
NH77	518006	229032	Roadside	92.3	92.3	35.3	34.0	24.5	26.9	29.5
NH82	518129	229065	Roadside	100.0	100.0	33.3	32.0		21.7	25.9
NH87	518731	228362	Roadside	100.0	100.0	23.8	23.7	33.5	18.7	19.9
NH88	524448	233898	Kerbside	92.3	92.3	34.7	35.7	32.3	-	25.6
NH89	518706	228293	Roadside	100.0	100.0	22.8	23.6	19.4	18.2	19.3
NH91	518656	228406	Roadside	100.0	100.0	27.4	29.8	26.7	21.8	23.4
NH92	518872	228305	Roadside	100.0	100.0	38.8	36.7	31.7	32.7	30.7
NH93	518130	229036	Roadside	100.0	100.0	46.1	41.9		-	31.1
NH94	517915	228967	Roadside	100.0	100.0	30.1	27.5	22.1	20.9	24.0
NH95	517886	228975	Roadside	100.0	100.0	29.9	28.9	23.0	19.5	22.9

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
NH98	519080	229510	Roadside	84.6	84.6	26.6	26.6	22.6	18.2	21.9
NH99	518953	229786	Roadside	92.6	92.6	29.2	28.0	18.1	21.4	22.9
NH108	518534	229302	Roadside	100.0	100.0	32.1	31.8	23.9	24.4	26.4
NH104	518757	228334	Roadside	80.7	80.7	27.5	25.7	19.2	20.0	22.5
NH105	519067	228255	Roadside	100.0	100.0	40.0	37.7	28.5	26.1	31.4
NH106	519250	228218	Roadside	100.0	100.0	35.0	35.4	24.2	22.4	27.0
NH107	518720	228335	Roadside	92.3	92.3	25.6	26.5	21.9	20.5	20.9
NH114	518150	229160	Roadside	100.0	100.0	27.0	25.2	20.7	18.6	21.8
NH115	535373	241466	Roadside	90.4	90.4	24.2	24.3	21.5	17.5	19.2
NH116	518492	228669	Roadside	100.0	100.0	33.6	31.2	20.5	21.3	24.8
NH117	518278	229752	Roadside	100.0	100.0	24.5	26.0	21.2	15.5	19.2
NH119	521767	218110	Roadside	100.0	100.0	24.4	23.0	18.9	16.3	19.1
NH120	539975	238521	Roadside	47.9	47.9				-	11.9
NH121	523849	233497	Roadside	92.3	92.3	23.8	20.9	16.6	18.5	16.9
NH122	523917	233917	Roadside	30.9	30.9	21.0	19.6		-	17.2
NH123	522289	232985	Roadside	77.4	77.4	19.0	19.0		18.8	19.7
NH124	520967	233073	Roadside	100.0	100.0	18.4	18.6	15.8	14.1	15.4
NH125	512486	223251	Rural	100.0	100.0	15.8	17.7	18.4	13.2	14.7
NH128	521497	218415	Roadside	90.4	90.4		25.0	24.0	15.7	19.0
NH129	525205	220142	Roadside	84.6	84.6		27.2		18.1	20.7
NH131	518215	231528	Kerbside	92.3	92.3		38.0	28.9	29.1	32.3

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
NH132	518283	231366	Roadside	100.0	100.0		18.7	16.9	17.3	15.8
NH133	523124	227776	Roadside	100.0	100.0		18.2	17.0	13.1	14.5
NH134	521516	227449	Roadside	100.0	100.0		18.6	13.5	12.5	14.5
NH110 NH111 NH112	518740	228348	Roadside	95.6	95.6	44.9	44.9	35.4	36.8	39.3

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22.**

☒ **Diffusion tube data has been bias adjusted**

☒ **Reported concentrations are those at the location of the monitoring site (bias adjusted and annualised, as required), i.e. prior to any fall-off with distance correction**

Notes:

The annual mean concentrations are presented as µg/m^3.

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined**.

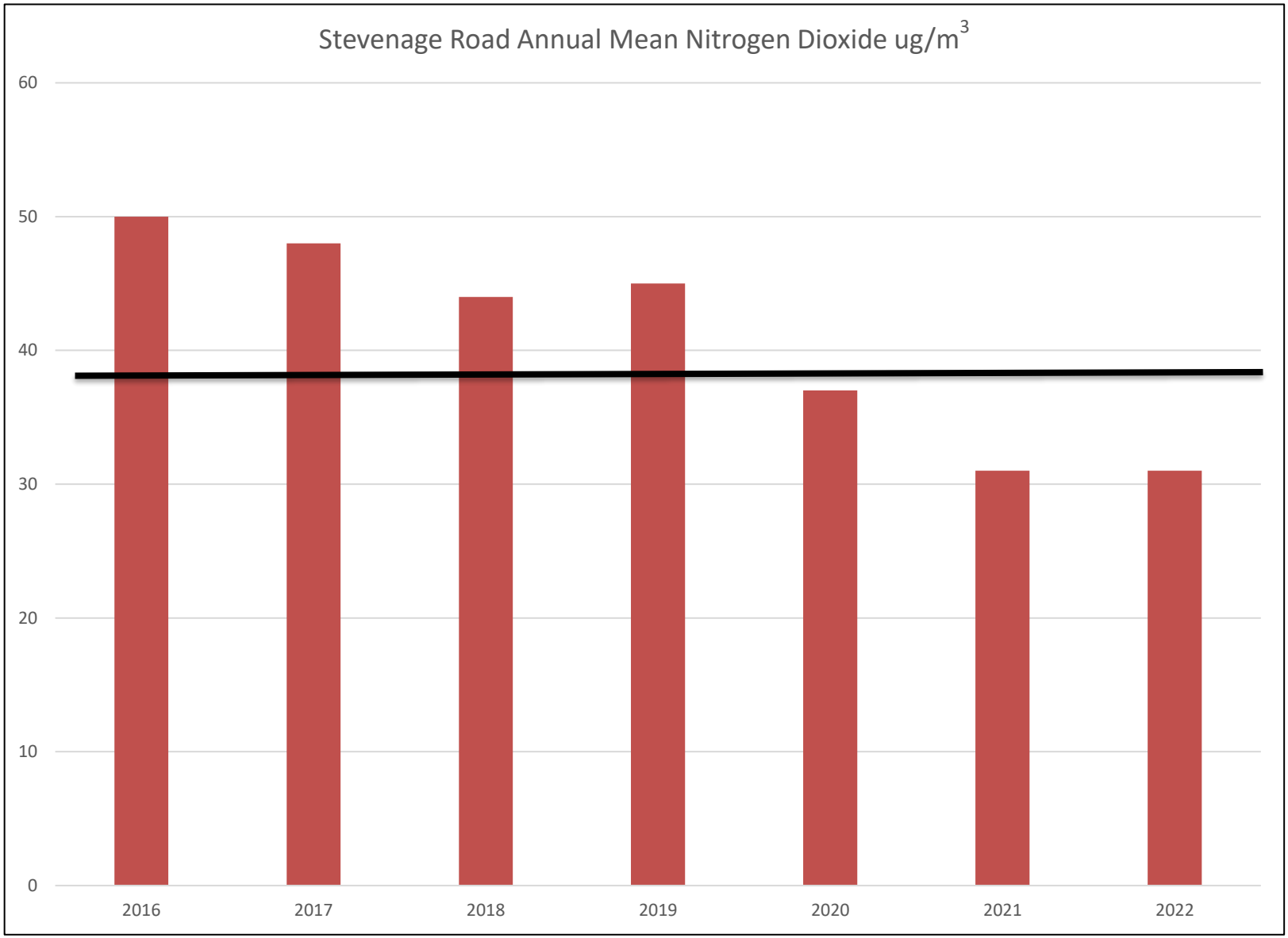
Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

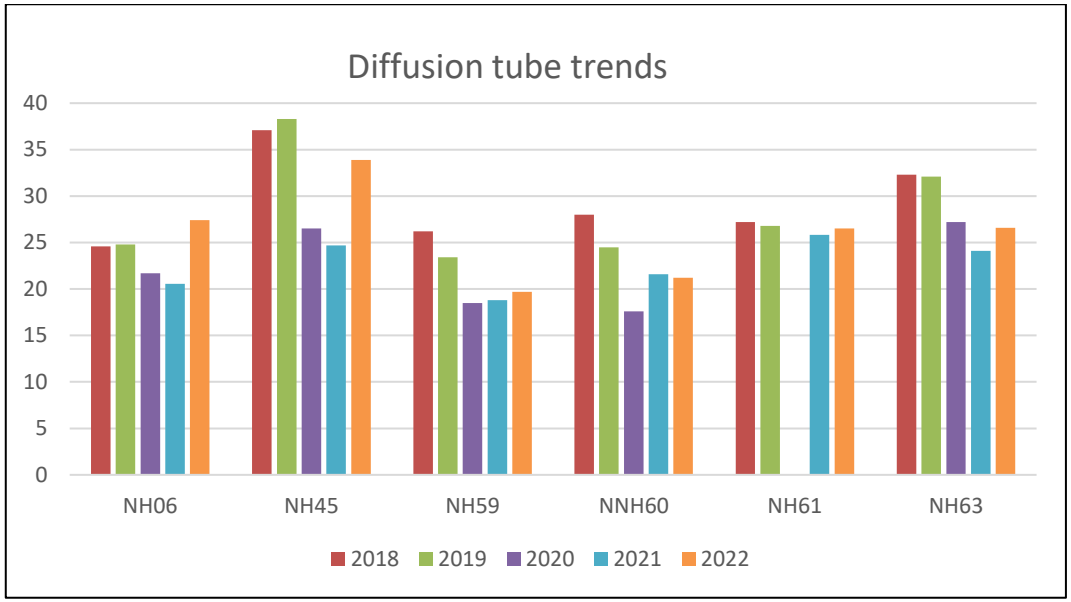
Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Figure A.1 – Trends in Annual Mean NO_2 Concentrations




Diffusion tube trends
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20
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10
5
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NH45
NH59
NNH60
NH61
NH63
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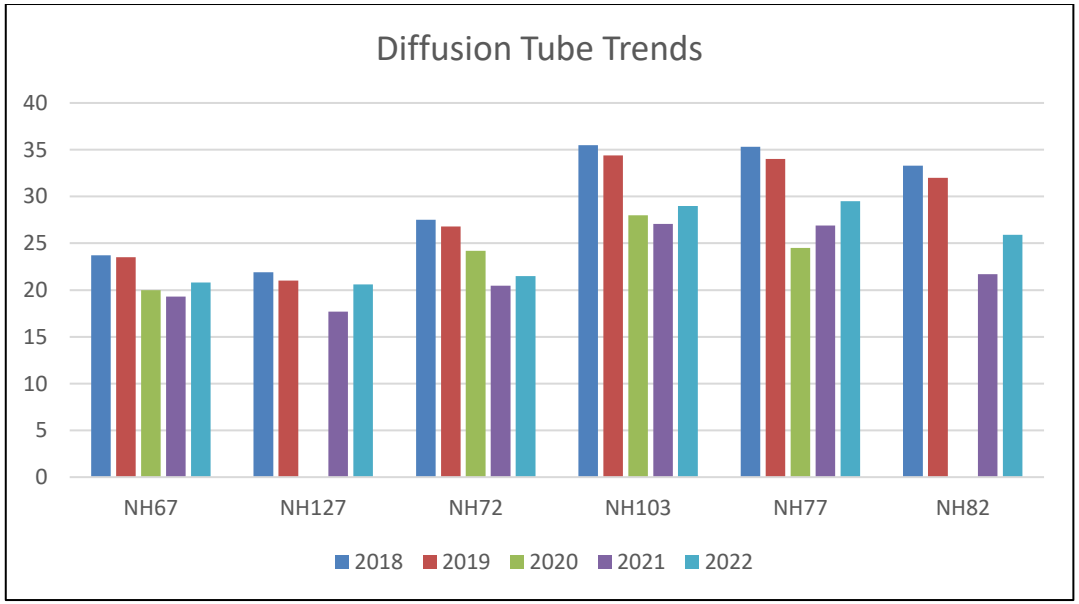
2019
2020
2021
2022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NH67
NH127
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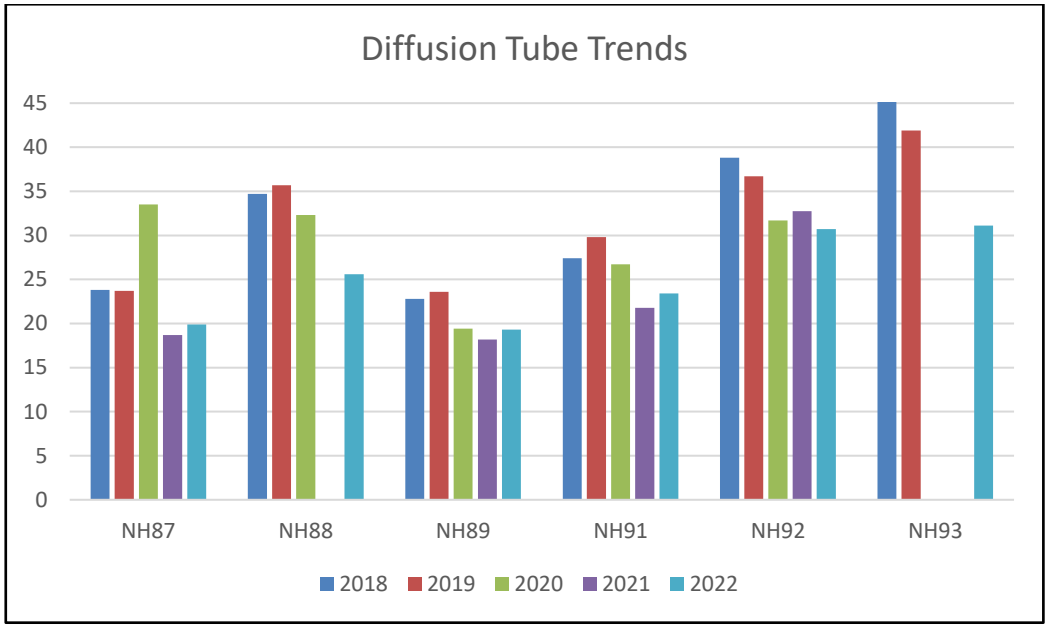
NH77
NH82
2018
2019
2020
2021
2022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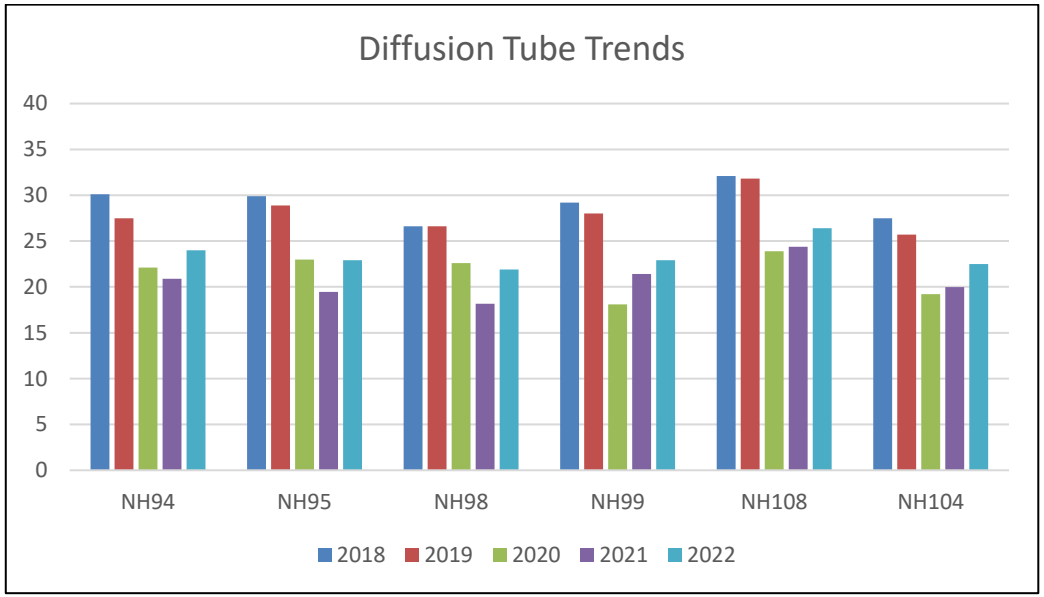
2019
2020
2021
2022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NH95
NH98
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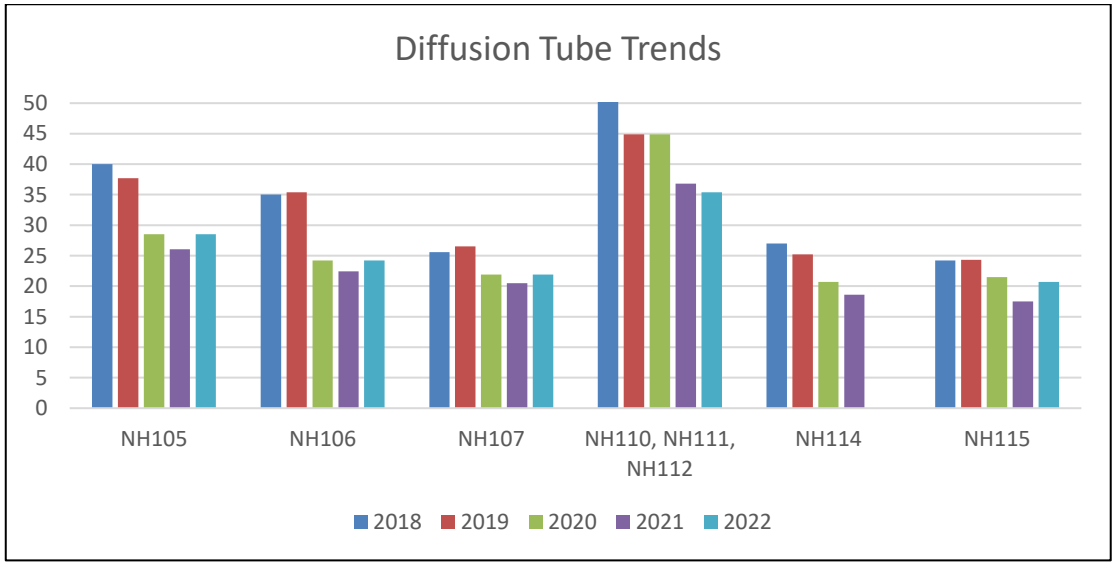
NH108
NH104
2018
2019
2020
2021
2022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NH114
NH115
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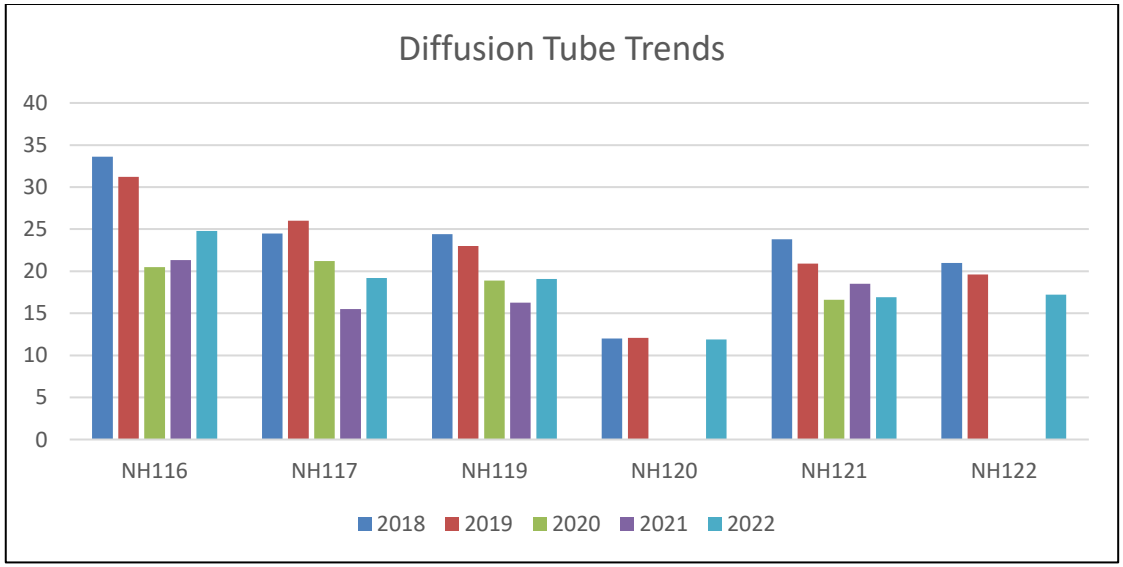
2019
2020
2021
2022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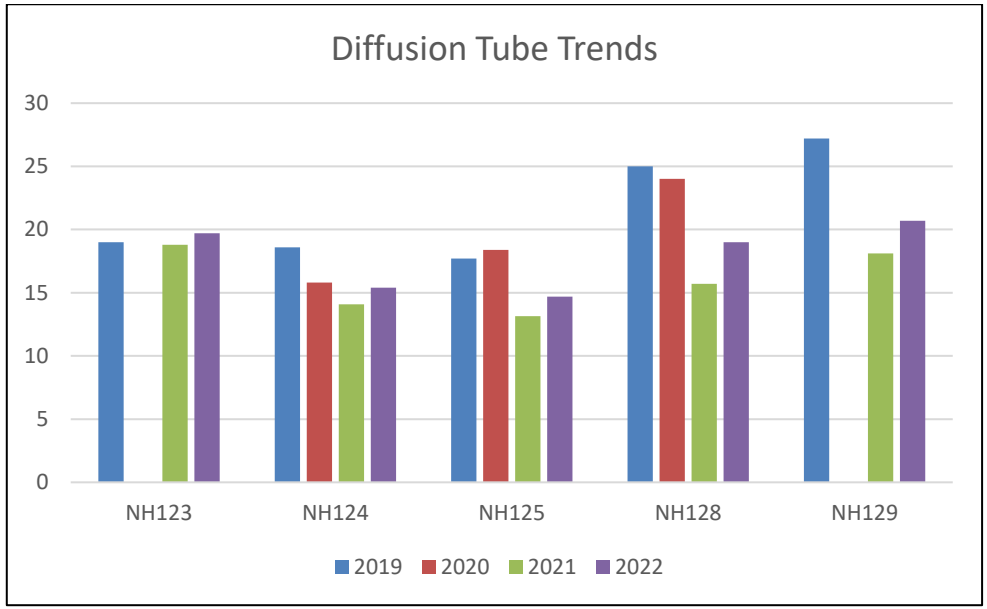
2020
2021
2022


Diffusion Tube Trends
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NH123
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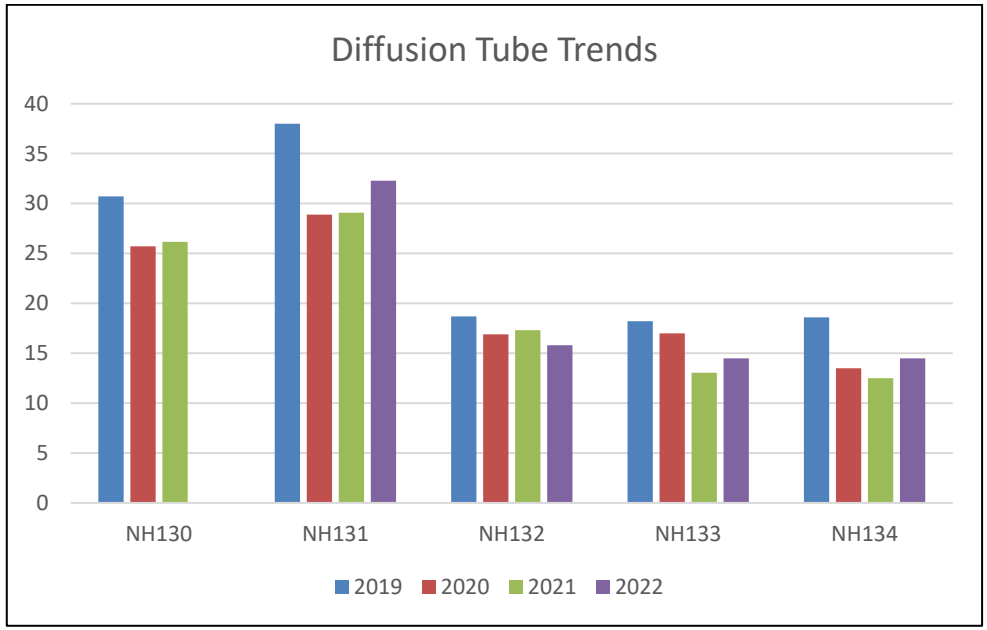
NH125
NH128
NH129
2019
2020
2021
2022


Diffusion Tube Trends
40
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30
25
20
15
10
5
0
NH130
NH131
NH132
NH133
NH134
2019
2020
2021
2022

Table A.5 – 1-Hour Mean NO_2 Monitoring Results, Number of 1-Hour Means > 200µg/m^3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
NH1	518740	228348	Roadside	98	98	0	0	0	0	0

Notes:

Results are presented as the number of 1-hour periods where concentrations greater than 200µg/m^3 have been recorded.
Exceedances of the NO_2 1-hour mean objective (200µg/m^3 not to be exceeded more than 18 times/year) are shown in **bold**.
If the period of valid data is less than 85%, the 99.8th percentile of 1-hour means is provided in brackets.
(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Figure A.2 – Trends in Number of NO_2 1-Hour Means > 200µg/m^3

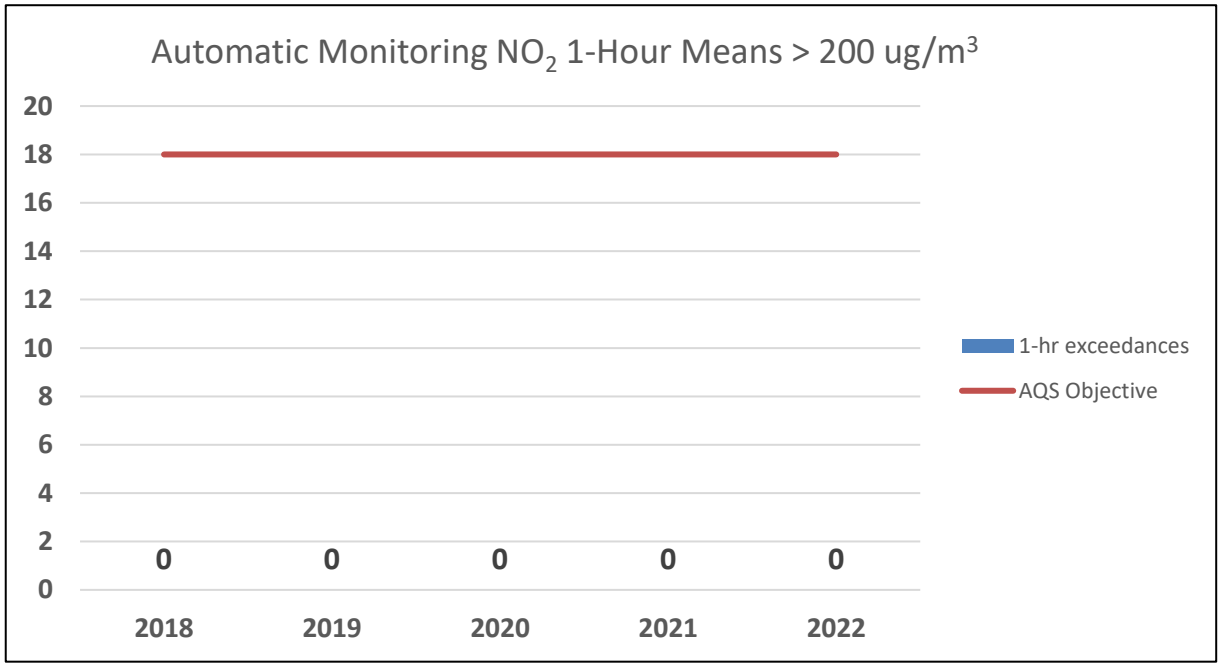


Table A.6 – Annual Mean PM_{10} Monitoring Results (µg/m³)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
NH2	518713	228349	Roadside	86	86	21.5	20.4	19.7	17	18.5

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22.**

Notes:

The annual mean concentrations are presented as µg/m³.

Exceedances of the PM_{10} annual mean objective of 40µg/m³ are shown in **bold**.

All means have been "annualised" as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Figure A.3 – Trends in Annual Mean PM_{10} Concentrations

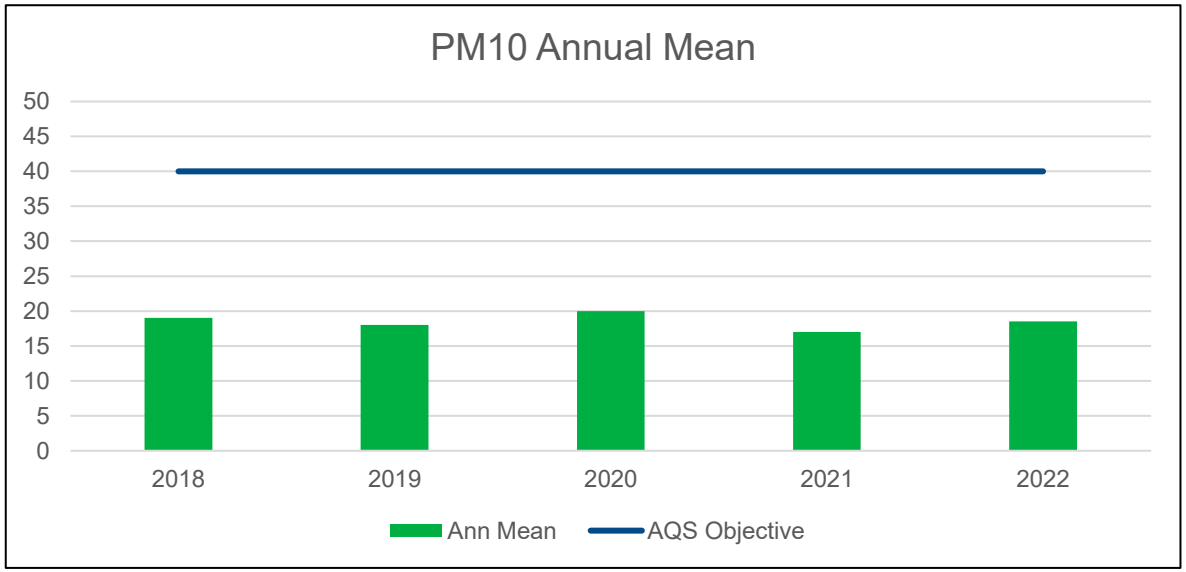


Table A.7 – 24-Hour Mean PM_{10} Monitoring Results, Number of PM_{10} 24-Hour Means > 50µg/m^3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
NH2	518713	228349	Roadside	86	86	1	5	1	0	4

Notes:

Results are presented as the number of 24-hour periods where daily mean concentrations greater than 50µg/m^3 have been recorded.
Exceedances of the PM_{10} 24-hour mean objective (50µg/m^3 not to be exceeded more than 35 times/year) are shown in **bold**.
If the period of valid data is less than 85%, the 90.4th percentile of 24-hour means is provided in brackets.
(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Figure A.4 – Trends in Number of 24-Hour Mean PM_{10} Results > 50µg/m^3

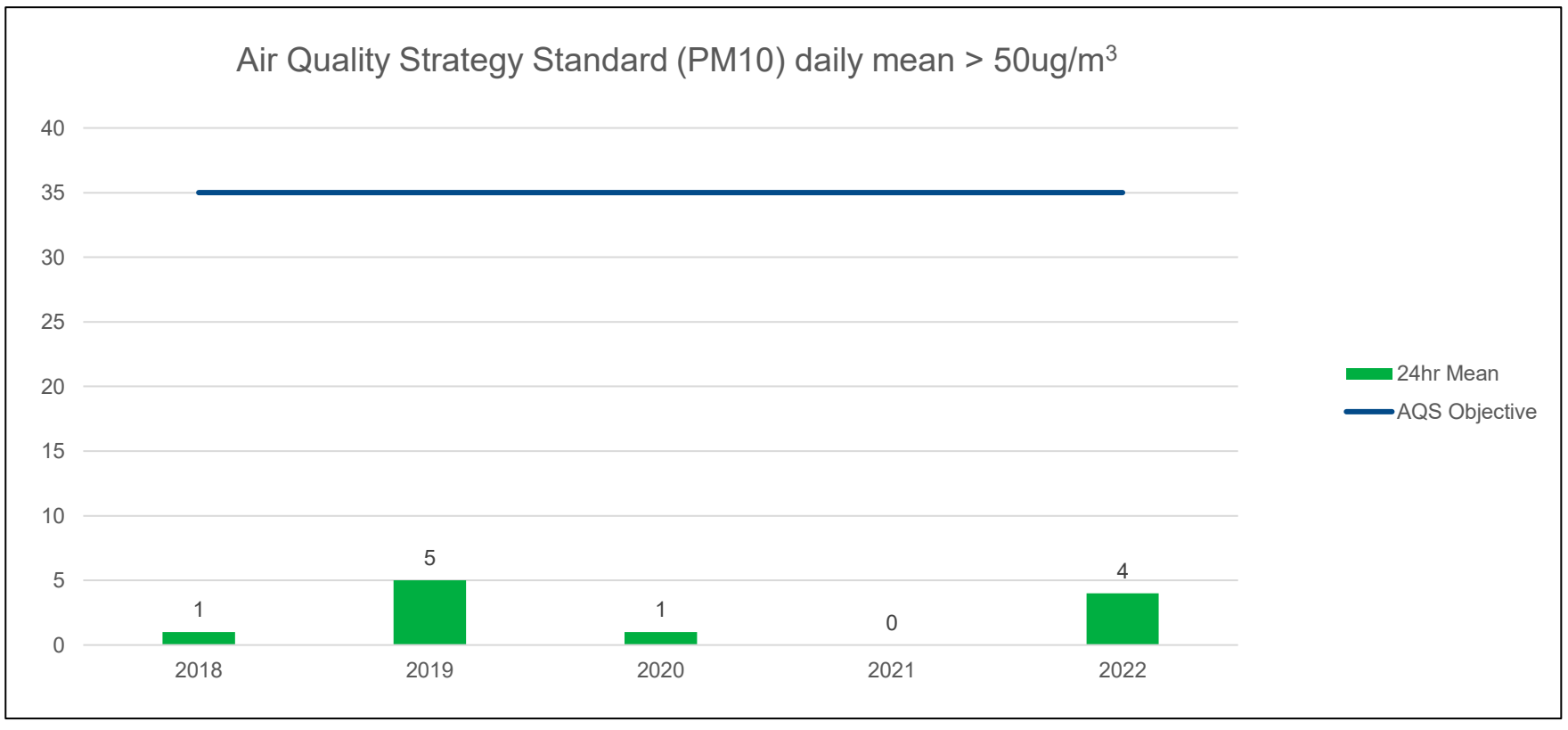


Table A.8 – Annual Mean $PM_{2.5}$ Monitoring Results ($\mu g/m^3$)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
NH2	518713	228349	Roadside	65	65	9.96	8.4	8.4	8	8.1

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22**

Notes:

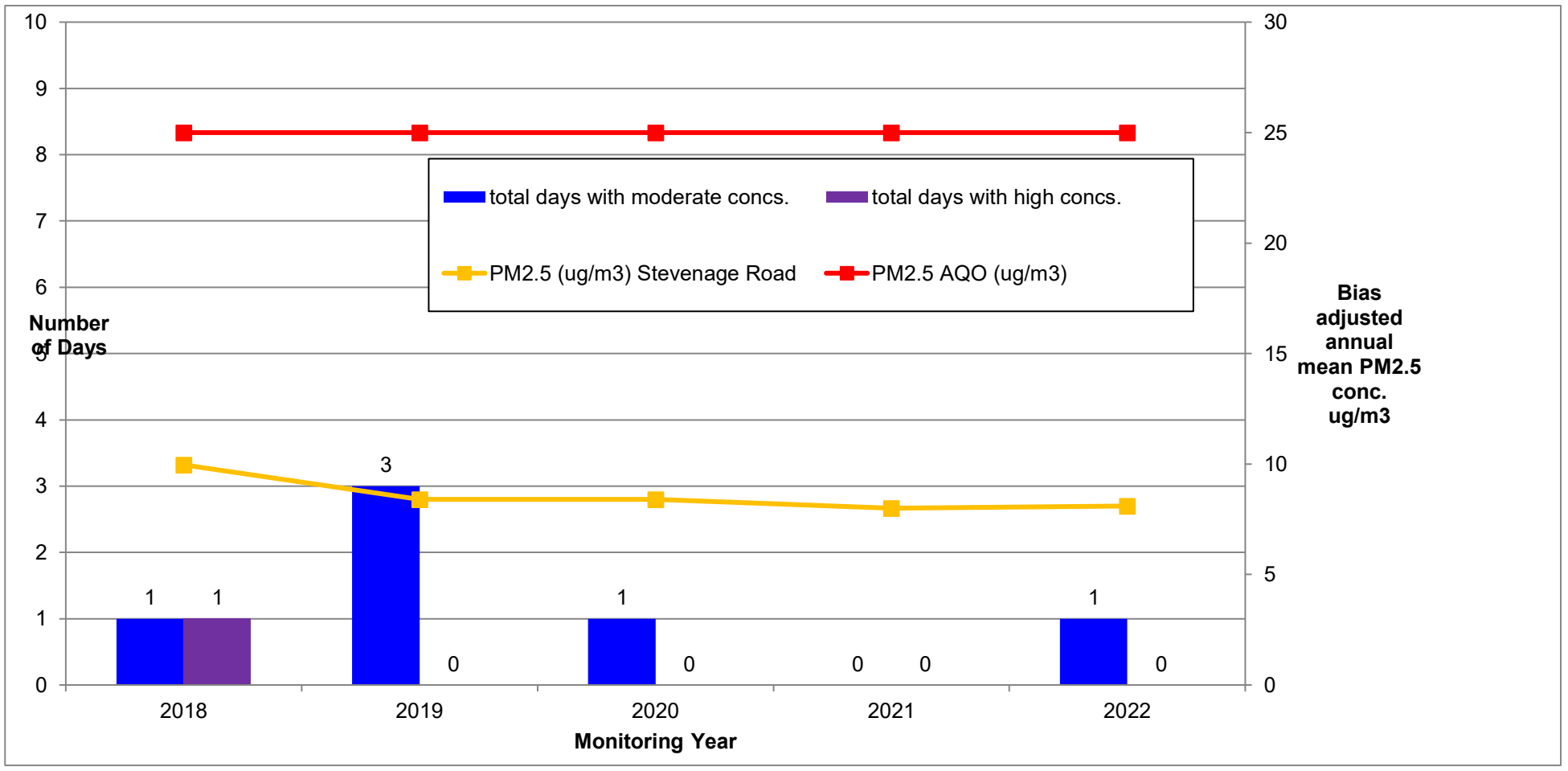
The annual mean concentrations are presented as $\mu g/m^3$.

All means have been "annualised" as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Figure A.5 – Trends in Annual Mean PM2.5 Concentrations



Appendix B: Full Monthly Diffusion Tube Results for 2022

Table B.1 – NO_2 2022 Diffusion Tube Results ($\mu g/m^3$)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (x.x)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
NH06	535906	240794	75.9		37.6	24.5		29.7	30.6	30.1	33.8	34.4			36.4	27.4		
NH45	518708	228347	57.7	44.8	52.4	62.0		37.5	32.4	35.5	34.6	43.1	46.9	34.4	44.6	33.9		
NH59	524649	234061	37.4	23.1	30.2	24.1	21.6	20.2		25.6	24.2	24.5	29.7	24.6	26.0	19.7		
NH60	519916	230099	37.6	26.6	31.6	29.5	23.1	24.8	23.1	25.9	30.7	25.3	30.1	27.5	27.9	21.2		
NH61	524428	233882	60.5	49.3	39.9	19.4	32.9	27.7	26.3	31.2	32.8	23.1	43.1	37.1	34.9	26.5		
NH63	518160	229092	46.5	38.6	42.8	25.2	29.8	31.3	29.8	21.8	33.9	38.7	43.4	35.7	34.9	26.6		
NH67	519225	230553	38.8	27.1	35.7	18.7	20.9	22.0	19.4	22.8	26.5	32.3	34.3	29.8	27.4	20.8		
NH127	518821	229993	37.9	25.8	40.3	22.7	19.9	21.8	19.6	23.0	26.2	30.4	31.7	24.5	27.1	20.6		
NH72	524502	233948	42.5	31.8	31.3	22.5	22.8	23.6	19.8	20.5	24.6	31.0	36.1	33.5	28.3	21.5		
NH103	518773	228342	59.1	36.9	49.7	38.9	30.6	30.1	31.1	33.3	31.9	38.3	39.8	41.5	38.2	29.0		
NH77	518006	229032	55.9	42.1		37.3	31.9	33.3	30.5	35.5	37.4	38.6	45.4	38.2	38.9	29.5		
NH82	518129	229065	42.9	34.0	44.7	29.7	30.3	31.1	29.3	31.9	30.1	33.8	38.6	32.4	34.1	25.9		
NH87	518731	228362	37.9	26.2	33.0	20.9	19.3	21.2	18.6	21.3	24.2	28.5	34.1	27.7	26.2	19.9		
NH88	524448	233898	47.5		23.0	32.2	27.2	35.1	29.3	26.0	29.1	41.6	37.0	47.2	33.7	25.6		
NH89	518706	228293	37.5	23.0	34.5	20.8	17.8	17.4	18.2	19.0	26.6	26.7	34.8	25.4	25.4	19.3		
NH91	518656	228406	48.1	36.2	33.1	23.1	24.4	21.3	18.9	23.4	28.6	35.2	40.0	36.0	30.7	23.4		
NH92	518872	228305	60.4	44.5	51.2	34.6	37.9	41.0	35.6	37.8	33.6	35.2	35.7	46.6	40.3	30.7		
NH93	518130	229036	44.8	43.2	47.0	36.9	38.8	42.2	35.3	39.3	39.1	38.5	45.6	38.2	40.9	31.1		
NH94	517915	228967	43.8	33.0	34.1	29.5	29.6	28.5	27.3	26.8	24.6	28.5	38.5	33.8	31.6	24.0		
NH95	517886	228975	38.9	30.8	35.4	26.7	26.8	28.1	25.9	26.1	25.6	29.7	35.3	32.1	30.1	22.9		
NH98	519080	229510	38.9	29.5	35.8	22.3	20.7	23.1	20.4			28.8	37.3	31.1	28.8	21.9		
NH99	518953	229786	43.9	30.9	39.5	27.1	22.1		24.0	21.8	29.2	31.8	32.6	30.7	30.2	22.9		
NH108	518534	229302	42.6	36.6	42.5	26.4	28.6	34.5	35.8	27.8	29.4	37.6	41.0	31.8	34.7	26.4		
NH104	518757	228334	39.2	28.1	31.1			25.1	24.1	26.8	28.2	25.8	35.8	29.3	29.6	22.5		
NH105	519067	228255	49.6	43.2	40.0	40.8	36.1	37.4	35.9	36.2	40.5	41.6	49.5	42.6	41.3	31.4		
NH106	519250	228218	46.1	28.6	50.0	34.2	28.1	27.1	31.5	35.2	37.2	37.4	44.0	13.5	35.5	27.0		
NH107	518720	228335	40.1		36.3	21.6	22.0	23.4	22.8	23.8	27.4	29.7	28.1	31.0	27.5	20.9		

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted <(x.x)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
NH110	518740	228348	71.8	49.6	60.9	43.8	42.6	54.2	48.3	52.3	52.8	53.6	63.1		-	-		Triplicate Site with NH110, NH111 and NH112 - Annual data provided for NH112 only
NH111	518740	228348	52.3	49.0	46.6	44.7		55.8	41.5	41.3		61.4			-	-		Triplicate Site with NH110, NH111 and NH112 - Annual data provided for NH112 only
NH112	518740	228348		50.5	61.8	41.3	45.9	51.7	44.2	51.6	54.1	58.7	47.3		51.7	39.3	26.2	Triplicate Site with NH110, NH111 and NH112 - Annual data provided for NH112 only
NH114	518150	229160	38.7	28.6	31.8	22.5	24.3	25.5	23.5	24.3	28.4	30.8	34.0	31.5	28.6	21.8		
NH115	535373	241466	22.4	27.5	34.1		19.3	22.1	19.9	20.1	22.6	28.2	30.8	29.4	25.2	19.2		
NH116	518492	228669	38.5	29.7	43.5	33.8	28.5	29.2	30.5	34.7	33.7	31.0	29.8	30.7	32.6	24.8		
NH117	518278	229752	41.4	25.4	33.0	18.4	19.8	20.0	18.4	18.6	22.3	23.3	34.4	28.2	25.3	19.2		
NH119	521767	218110	38.2	22.7	34.2	21.8	16.7	16.9	16.8	20.8	23.5	25.5	36.5	24.0	25.1	19.1		
NH120	539975	238521	26.6	17.0	19.1	12.8		11.7	10.6						16.1	11.9		
NH121	523849	233497	27.4		18.0	24.1	16.5	17.0	15.0	21.0	23.9	25.5	29.6	22.6	22.2	16.9		
NH122	523917	233917	37.9	23.2					15.3	15.0					22.6	17.2		
NH123	522289	232985	32.7	23.9	34.2	23.9	22.2	23.9	22.6	22.8	27.7			28.2	25.9	19.7		
NH124	520967	233073	32.5	17.4	29.3	17.4	15.3	17.1	14.0	13.4	17.5	20.3	26.3	22.3	20.3	15.4		
NH125	512486	223251	31.9	22.2	18.4	12.4	13.8	15.0	12.8	12.5	16.7	21.8	29.1	25.0	19.4	14.7		
NH128	521497	218415	33.5	20.1	30.0	16.7		18.2	28.7	17.8	21.4	26.8	34.3	22.1	25.0	19.0		
NH129	525205	220142	35.9			23.5	19.3	20.8	23.1	28.6	28.3	28.4	35.3	26.1	27.2	20.7		
NH131	518215	231528	48.4	37.8	56.1	38.9	35.0	41.6	39.8	41.2		41.3	48.8	36.3	42.6	32.3		
NH132	518283	231366	27.4	20.3	27.3	15.6	15.6	18.9	15.9	15.2	17.6	21.7	29.5	23.0	20.8	15.8		
NH133	523124	227776	24.8	18.5	22.9	15.0	12.6	13.5	12.9	14.1	19.3	23.2	27.8	22.5	19.1	14.5		
NH134	521516	227449	26.1	16.8	25.1	16.6	13.9	14.3	22.5	14.8	16.7	20.6	21.9	20.6	19.1	14.5		

☒**All erroneous data has been removed from the NO_2 diffusion tube dataset presented in Table B.1**

☒**Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22**

☒**National bias adjustment factor used**

☒**Where applicable, data has been distance corrected for relevant exposure in the final column.**

☒**NHDC confirm that all 2022 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System**

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined**.

See Appendix C for details on bias adjustment and annualisation.

Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC

New or Changed Sources Identified Within North Hertfordshire During 2022

North Hertfordshire Council has not identified any new sources relating to air quality within the reporting year of 2022.

Additional Air Quality Works Undertaken by North Hertfordshire Council During 2022

North Hertfordshire Council has not completed any additional works within the reporting year of 2022.

QA/QC of Diffusion Tube Monitoring

Non-Automatic Monitoring:

The diffusion tubes are 50% triethanolamine (TEA) in acetone and are supplied and analysed by SOCOTEC Didcot. SOCOTEC follows the procedures set out in the Harmonisation Practical Guidance. SOCOTEC also participates in the Workplace Analysis Scheme for Proficiency (WASP) and is currently ranked as a Category Satisfactory laboratory. This information was used in selecting the below bias adjustment factor.

Data from the diffusion tubes has been compared and bias corrected to the factors produced from the UK co-location database. The bias adjustment factor has been taken from the latest version of the Diffusion Tube Bias Adjustment Factors spreadsheet available from the Defra Review and Assessment website (http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html).

According to the above database the bias adjustment factor for SOCOTEC in 2022 was 0.76

Diffusion Tube Annualisation

Short-term to Long-term Data adjustment (Annualisation):

Where it has only been possible to carry out monitoring at a location, whether automatic or non-automatic, at a site for less than 75% of the 12 months the results need to be adjusted to enable an estimate of the annual mean for that location to be calculated. The following locations were where less than 75% data were collected during 2022, so annualisation was required for these locations. It should be noted that a minimum 6-month period is necessary for this process to be valid.

NH06; NH120; NH122

The diffusion tube processing tool was used to carry out the annualisation as detailed below in Table C1.

Table C.1 – Annualisation Summary (concentrations presented in µg/m^3)

Diffusion Tube Annualisation (from Diffusion Tube Processing Tool)

Diffusion Tube ID	Annualisation Factor Dacorum Northchurch	Annualisation Factor Hertford Gascoyne Way	Annualisation Factor Bedford Lurke St	Average Annualisation Factor	Raw Data Time Weighted Annual Mean (µg/m3)	Annualised Data Time Weighted Annual Mean (µg/m3)
NH06	0.985	1.014	0.964	0.987	36.4	36.0
NH120	0.995	0.995	0.939	0.977	16.1	15.7
NH122	1.032	1.037	0.932	1.000	22.6	22.7

PM2.5 Annualisation

Annualisation was carried out on the PM2.5 annual mean data due to data capture falling below 75% as detailed below

Background Site	Annual Mean 2022 (Am)	Period Mean 2022 (Pm)	Ratio (Am/Pm)
Dacorum Northchurch High St	9.646	10.83	0.890
Hertford Gascoyne Way	11.64	12.49	0.931
Luton Dunstable Road	9.09	9.96	0.913
Average Ratio			**0.912**

The recorded Annual Mean $PM_{2.5}$ value was 8.90 µg/m^3, this was modified to a value of 8.11 µg/m^3 after applying the annualisation factor.

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2023 ASR have been corrected for bias using an adjustment factor. Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference chemiluminescence analyser. LAQM.TG22 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO_x/NO_2 continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

North Hertfordshire Council have applied a national bias adjustment factor of 0.76 to the 2022 monitoring data. A summary of bias adjustment factors used by North Hertfordshire Council over the past five years is presented in Table C.2.

Table C.2 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2022	National	03/23	0.76
2021	National	09/20	0.78
2020	National	03/21	0.76
2019	National	03/20	0.75
2018	National	03/19	0.76

National bias adjustment factors were used after output from the Diffusion Tube Processing Tool showed poor overall data capture for local data.

NO_2 Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO_2 concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/NO_2 fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO_2 concentrations corrected for distance are presented in Table B.1.

The table below is copied as an output from the diffusion tube processing tool.

Table C.3 – NO_2 Fall off With Distance Calculations (concentrations presented in $\mu g/m^3$)

Site ID	Distance (m): Monitoring Site to Kerb	Distance (m): Receptor to Kerb	Monitored Concentration (Annualised and Bias Adjusted	Background Concentration	Concentration Predicted at Receptor	Comments
NH110, NH111, NH112	2.0	13.0	39.3	9.4	26.2	Triplicate site co-located with continuous monitor at Stevenage Road

QA/QC of Automatic Monitoring

The R&P 1400a Tapered Element Oscillating Measurement (TEOM) monitor at Stevenage Road, Hitchin is subject to calibration visits and filter checks and changes on a monthly basis by NHDC staff. In addition, Air Monitors are employed to undertake two service/maintenance visits (one minor and one major service) and to respond in the event of any maintenance issues encountered during daily operation. The calibration readings are reported to Ricardo Energy and Environment who are retained by NHDC to verify and ratify the data generated by the monitor. This process includes the application of the volatile correction model (VCM) and the results of the data reported have had this applied and have been demonstrated as equal to the gravimetric equivalent.

The Met-One Smart Heated BAM 1020 $PM_{2.5}$ monitor at Stevenage Road requires no periodic calibration checks, only a tape change approximately once every six weeks which is undertaken by NHDC staff. In addition, Air Monitors are employed to undertake two service/maintenance visits (one minor and one major service) and to respond in the event of any maintenance issues encountered during daily operation. The outcome of the servicing and the associated performance of the monitor are reported to Ricardo Energy and Environment who are retained by NHDC to verify and ratify the data generated by the monitor.

The Teledyne-API T200A chemiluminescence monitor at Stevenage Road is subject to calibration checks and filter checks and changes on a monthly basis by NHDC staff. In addition, Air Monitors are employed to undertake two service/maintenance visits (one minor and one major service) and to respond in the event of any maintenance issues encountered during daily operation. The calibration readings are reported to Ricardo Energy and Environment who are retained by NHDC, as part of the larger Hertfordshire and Bedfordshire Air Quality Network, to verify and ratify the data generated by the monitor.

PM_{10} and $PM_{2.5}$ Monitoring Adjustment

VCM corrections have been applied to the raw PM data by Ricardo Energy & Environment, who process and ratify continuous monitoring data, on behalf of North Hertfordshire Council.

Automatic Monitoring Annualisation

The PM2.5 automatic data capture was below the 75% level, and the annualisation data is presented in Table C1 above.

NO_2 Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO_2 concentration at the nearest location relevant for exposure has been estimated using the NO_2 fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO_2 concentrations corrected for distance are presented in Table B.1.

No automatic NO_2 monitoring locations within North Hertfordshire required distance correction during 2022.

Appendix D: Map(s) of Monitoring Locations and AQMAs

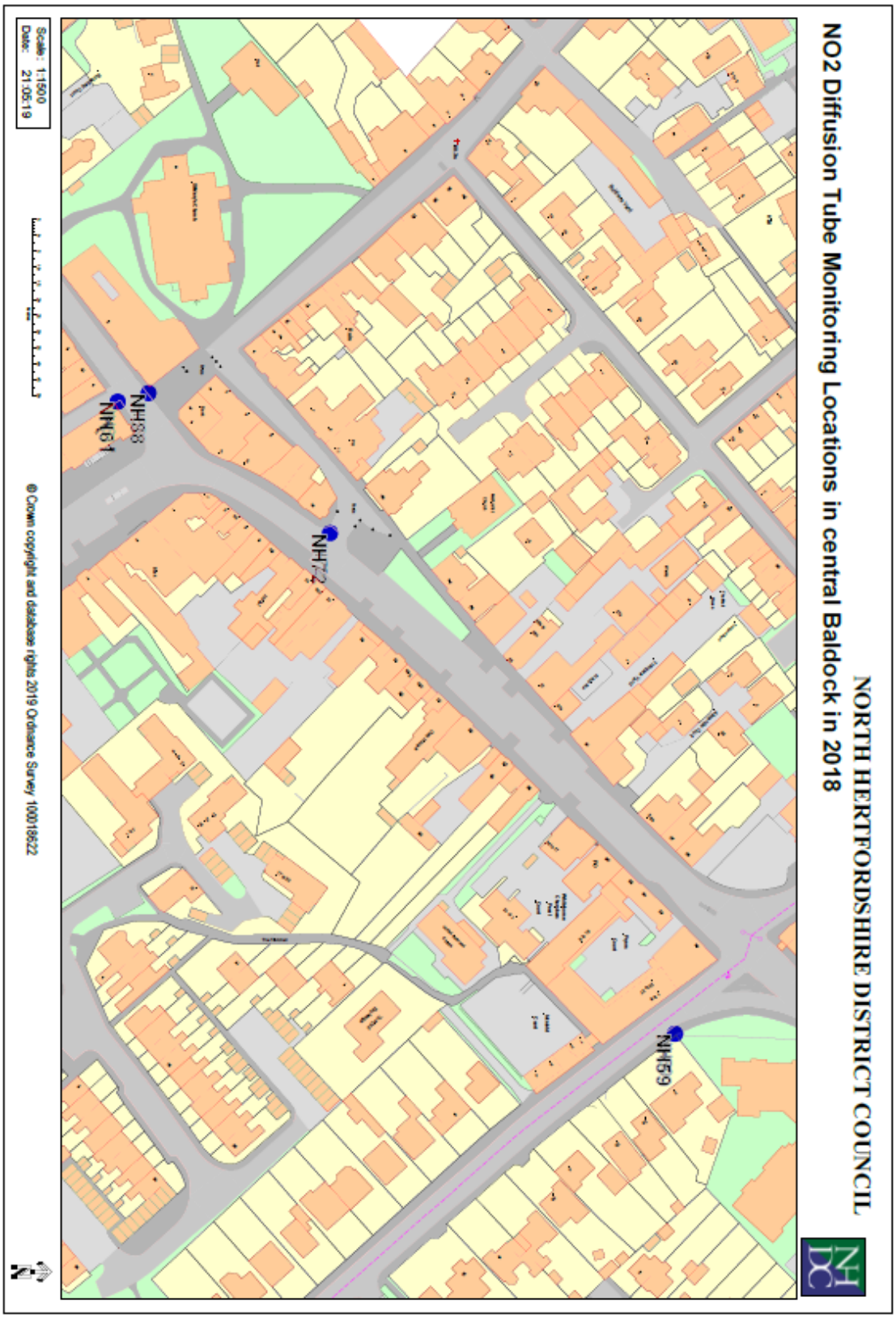


Figure D.1 Diffusion Tube Monitoring Locations (NH72, NH88, NH59 & NH61) in central Baldock - 2021

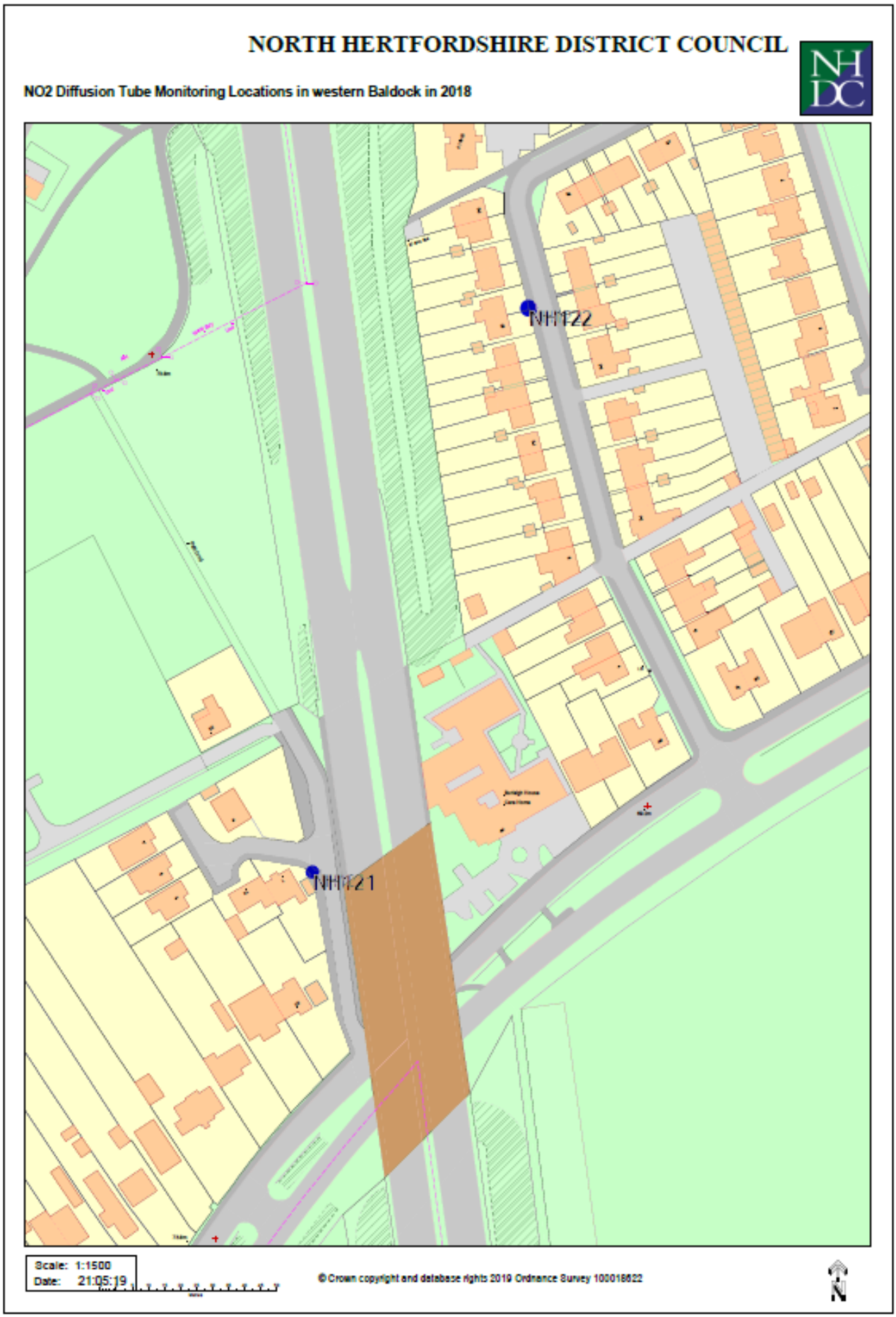


Figure D2: Diffusion Tube Monitoring Locations (NH121 & NH122) in western Baldock - 2022

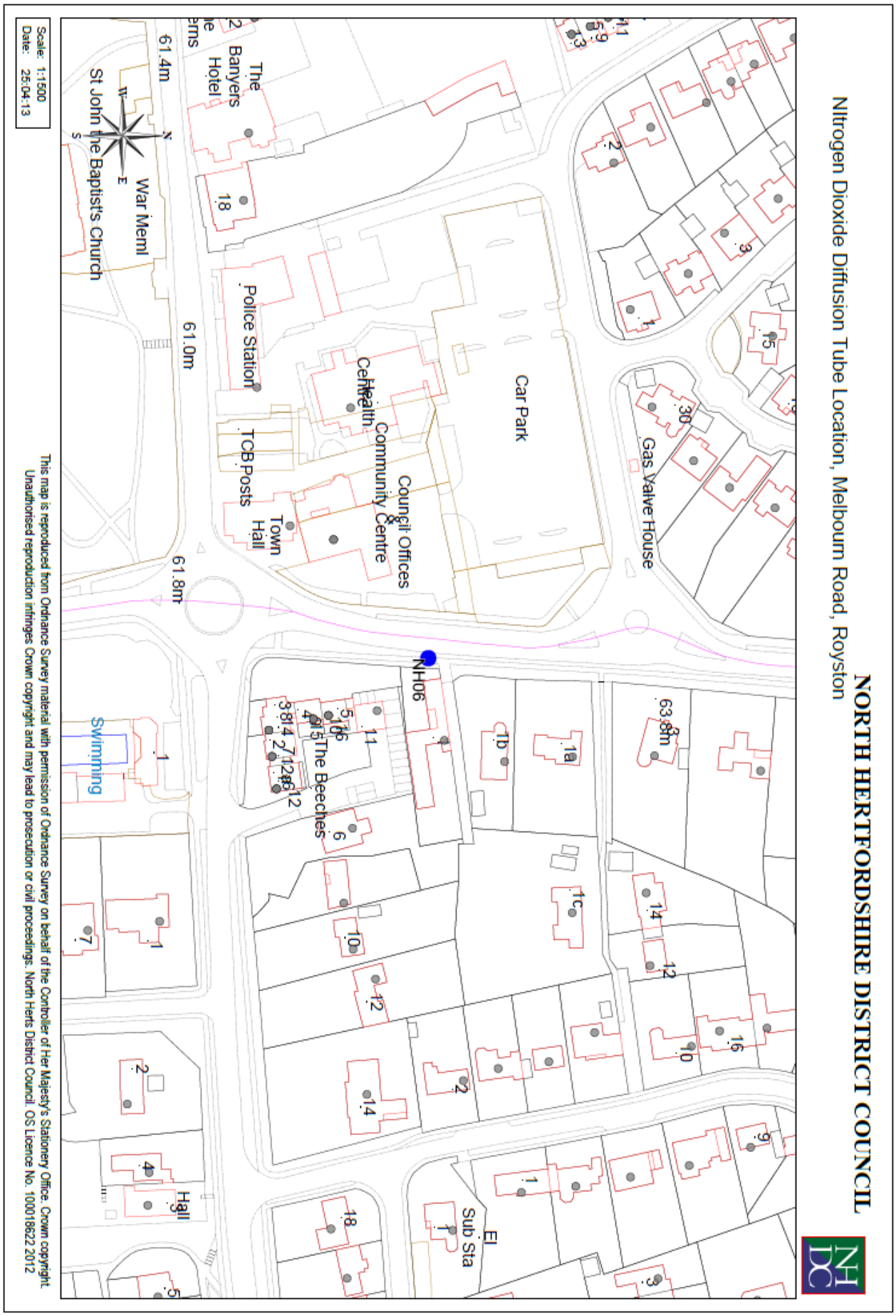


Figure D3: Diffusion Tube Monitoring Location (NH06) at Melbourn Road, Royston - 2022

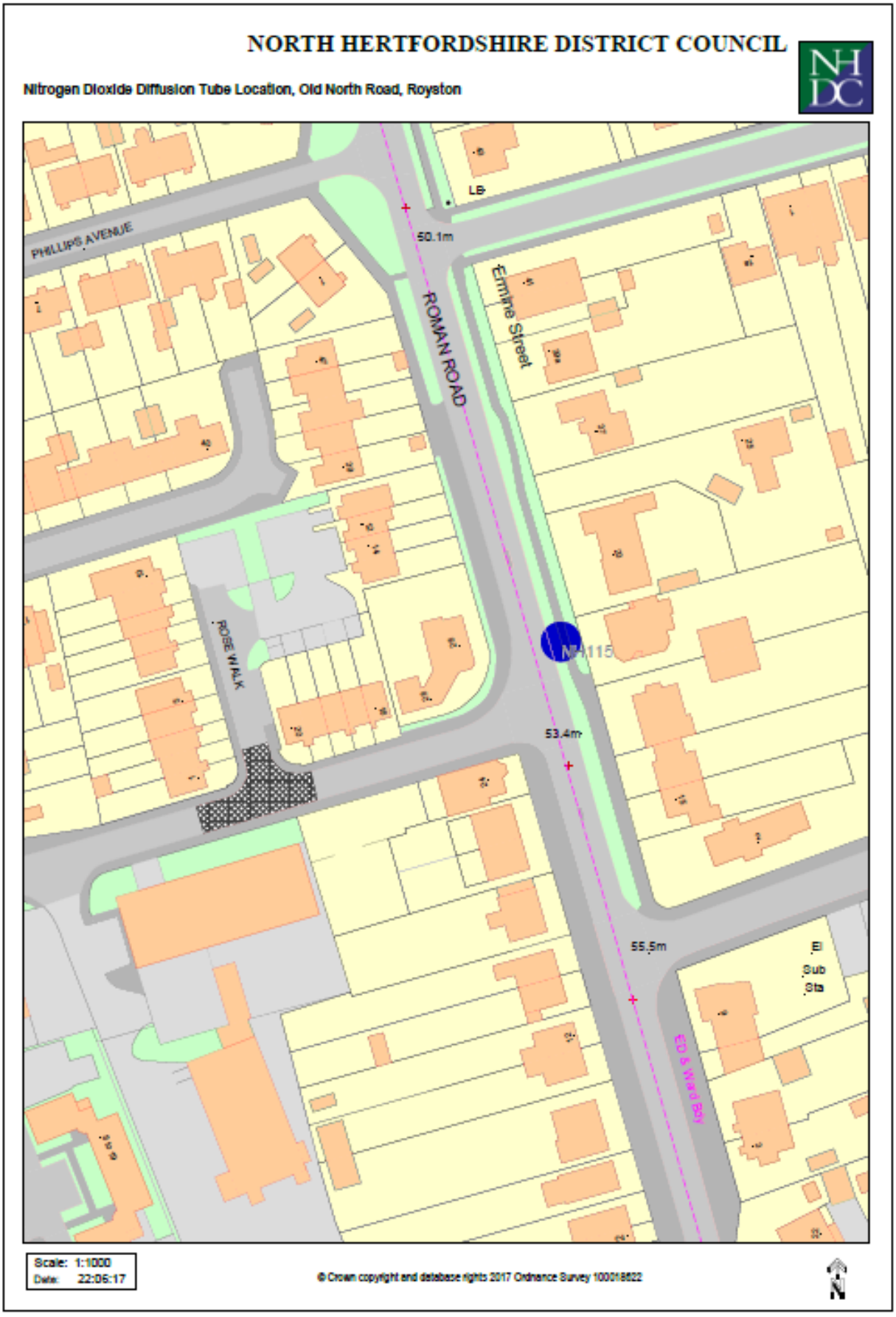


Figure D4: Diffusion Tube (NH115) Monitoring Location at Old North Road, Royston - 2022

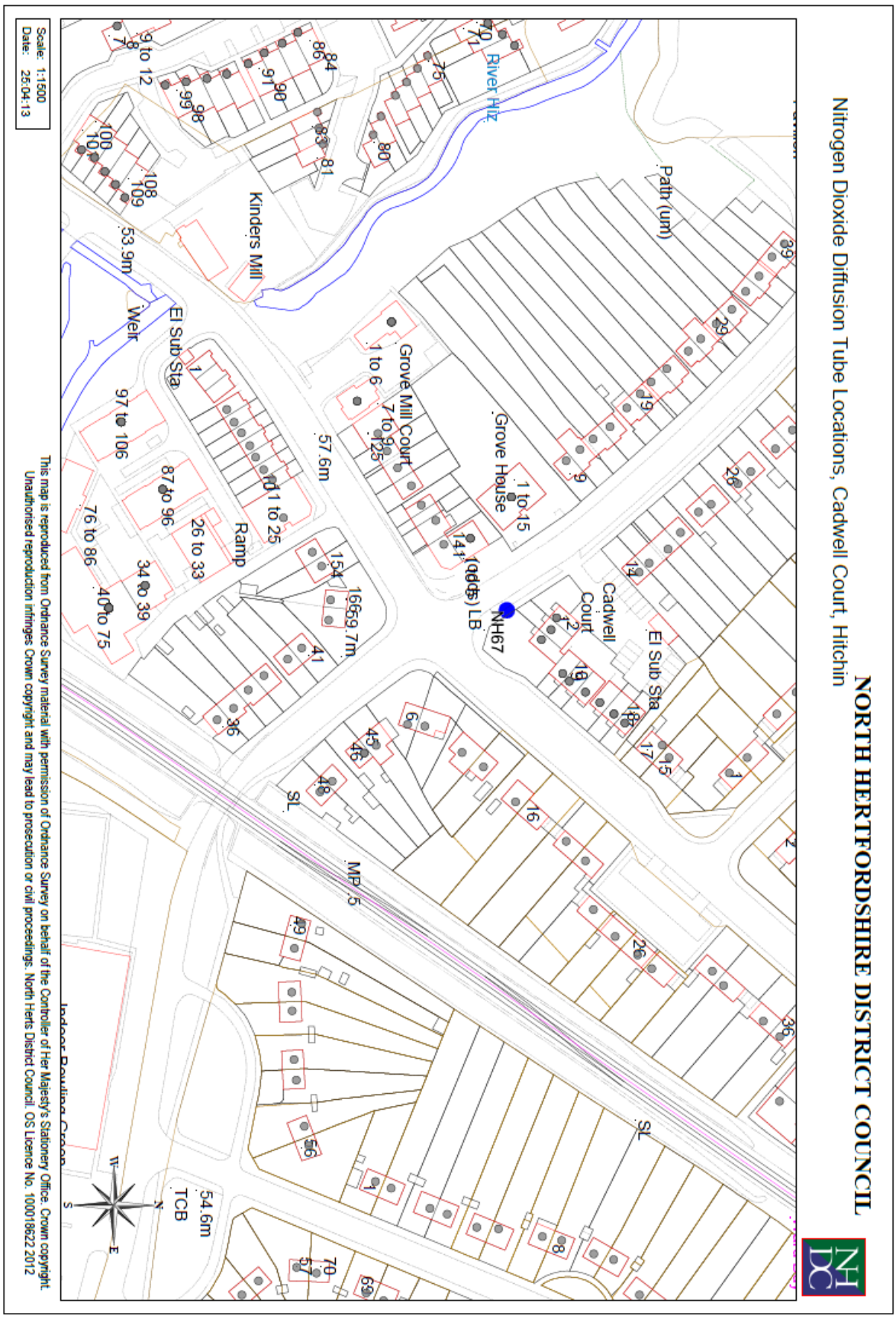


Figure D5: Diffusion Tube (NH67) Monitoring Location at Cadwell Court, Hitchin - 2022

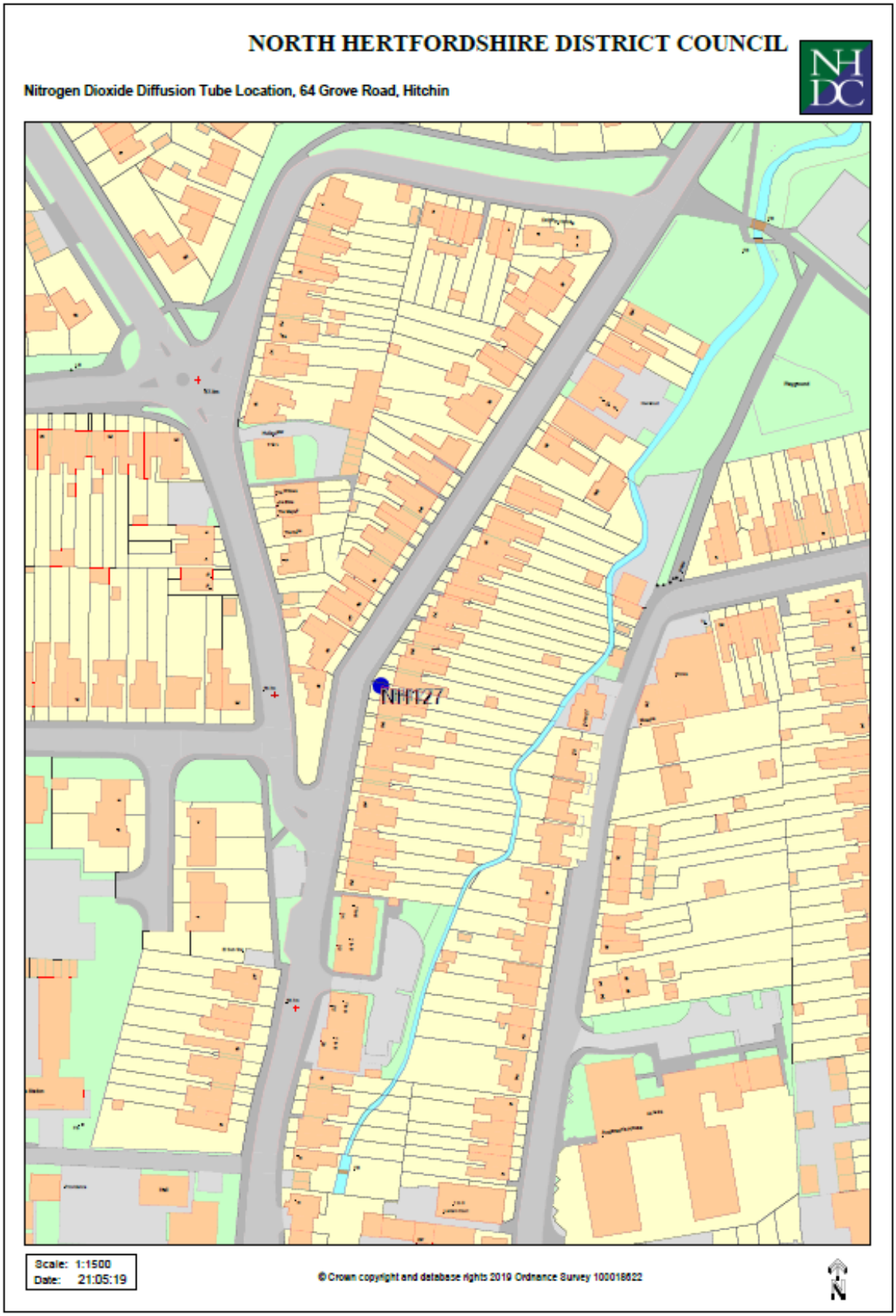


Figure D6: Diffusion Tube (NH127) Monitoring Location at Grove Road, Hitchin - 2022

Figure D7: Diffusion Tube Monitoring Locations (NH99 & NH98) in the Nightingale Road Area of Hitchin – 2022

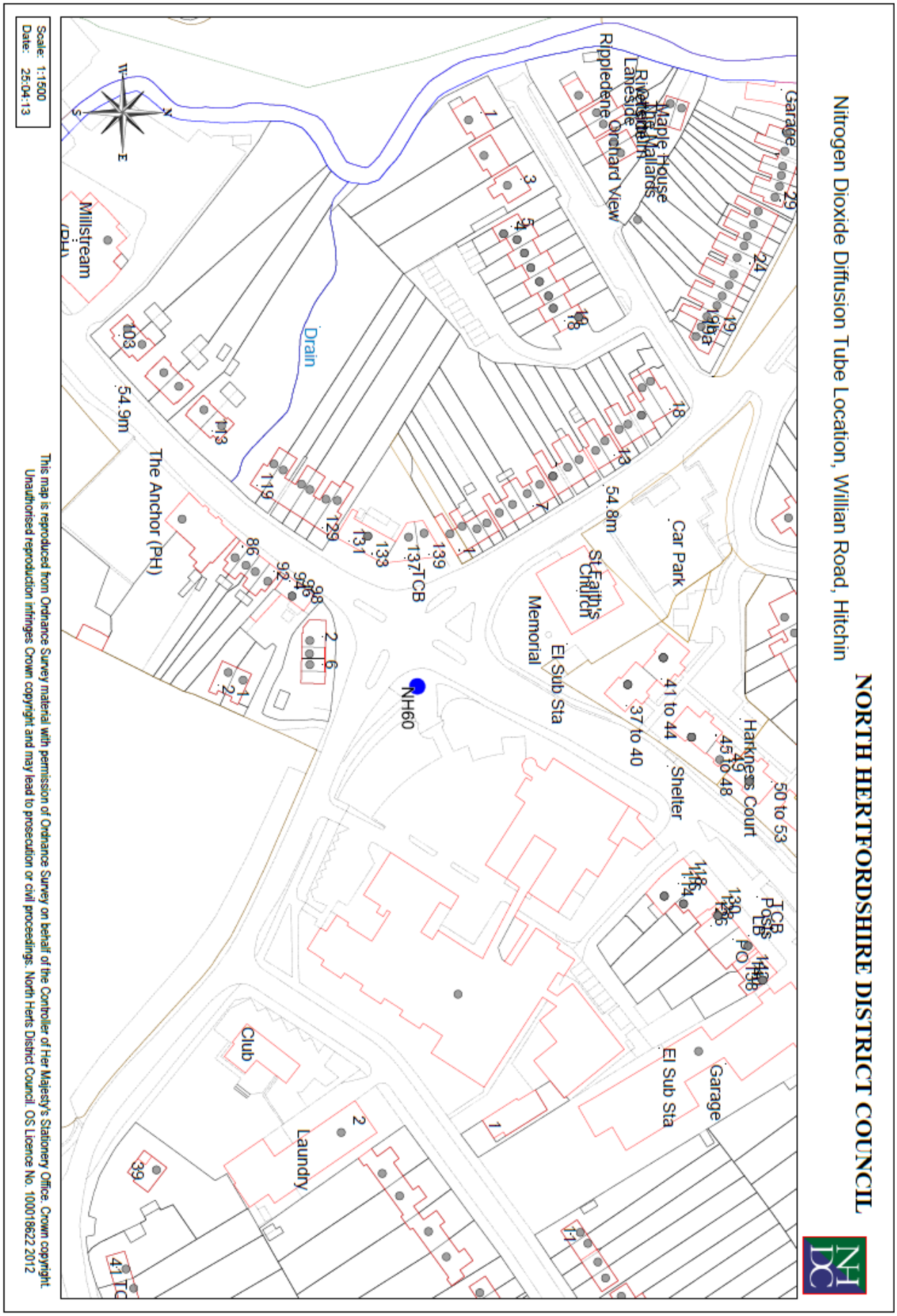


Figure D8: Diffusion Tube Monitoring Location (NH60) at Willian Road, Hitchin - 2022

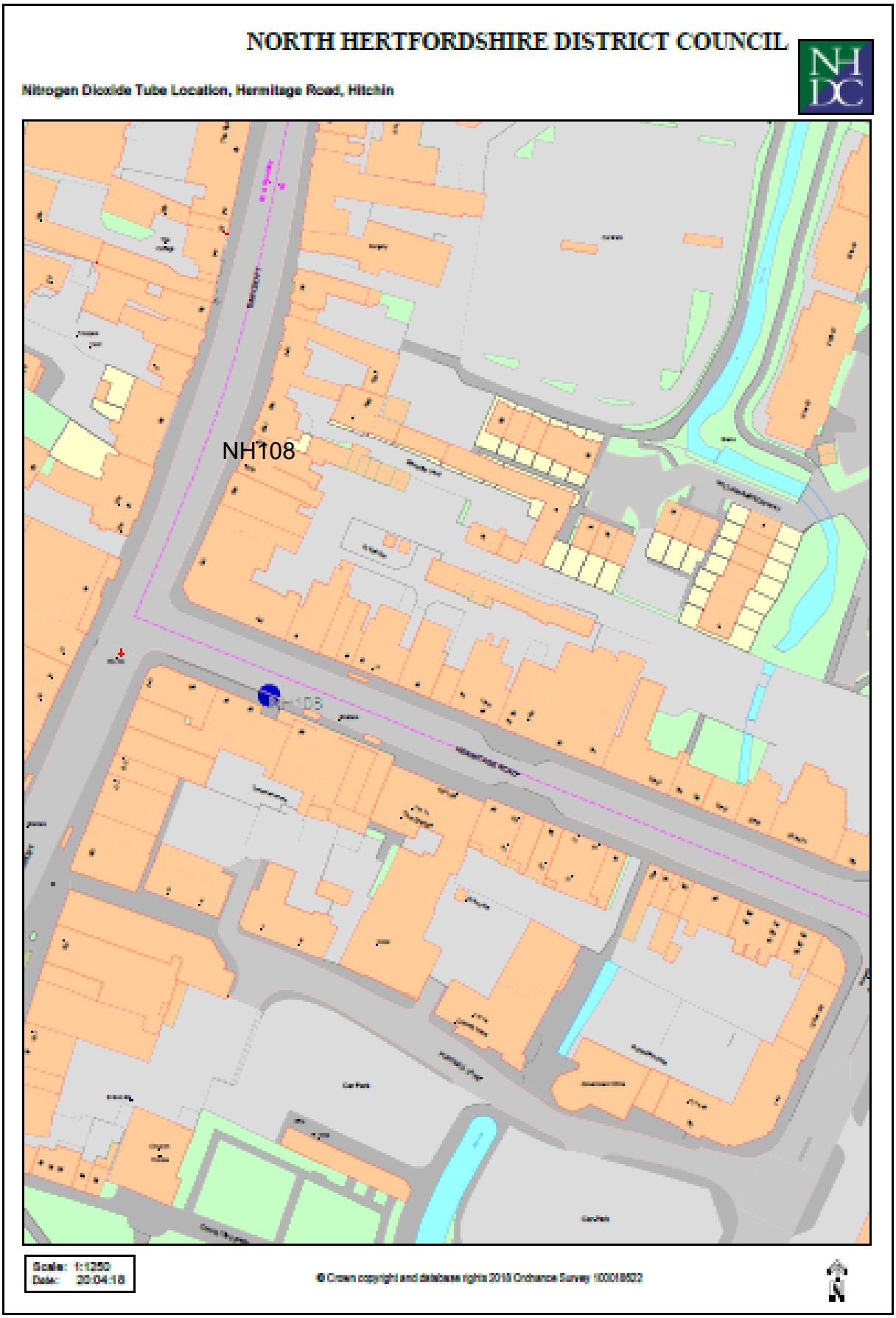


Figure D9: Diffusion Tube Monitoring Location (NH108) at Hermitage Road, Hitchin – 2022

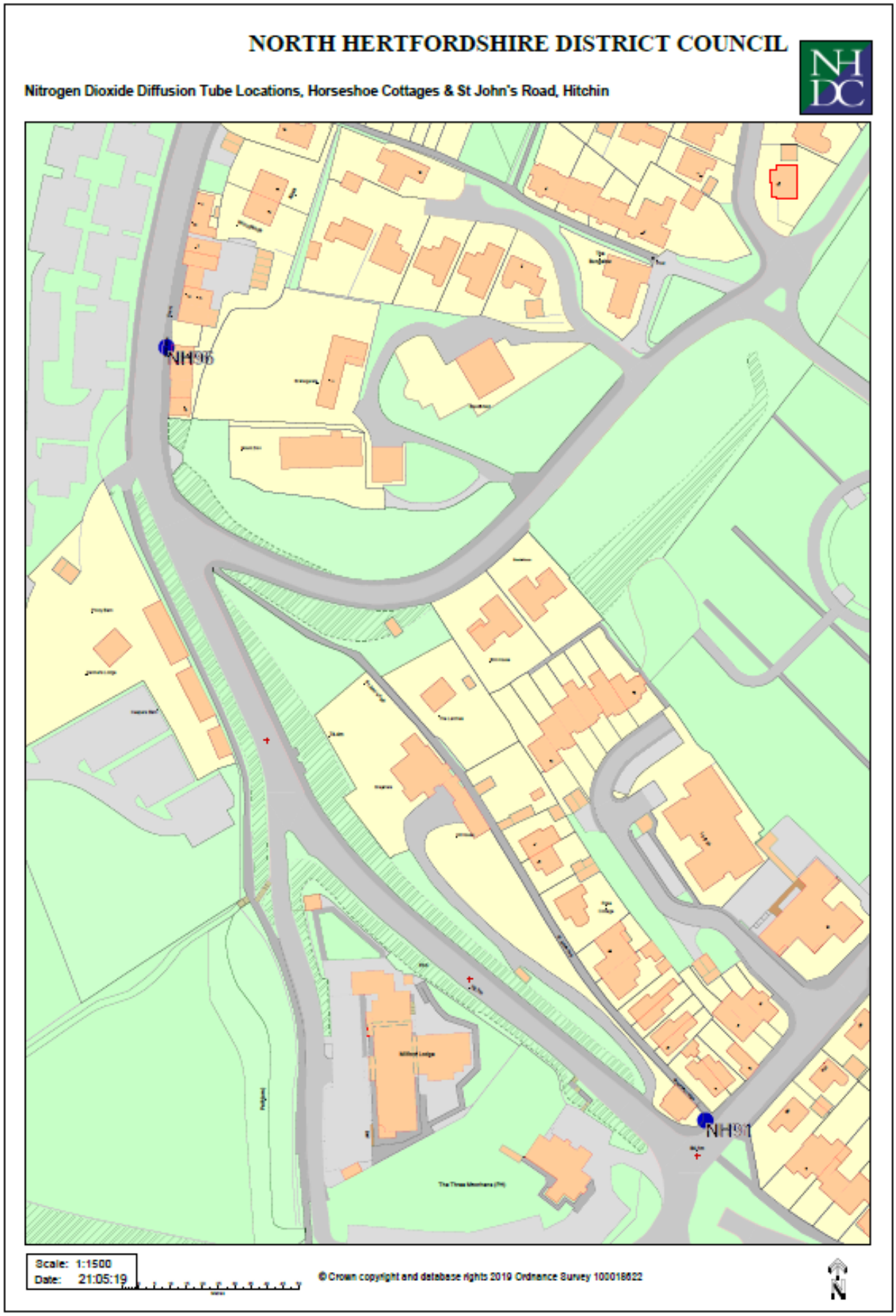


Figure D10: Diffusion Tube Monitoring Locations (NH116) at 6 Horseshoe Court, Park Street and (NH91) at St John's Road, Hitchin - 2022

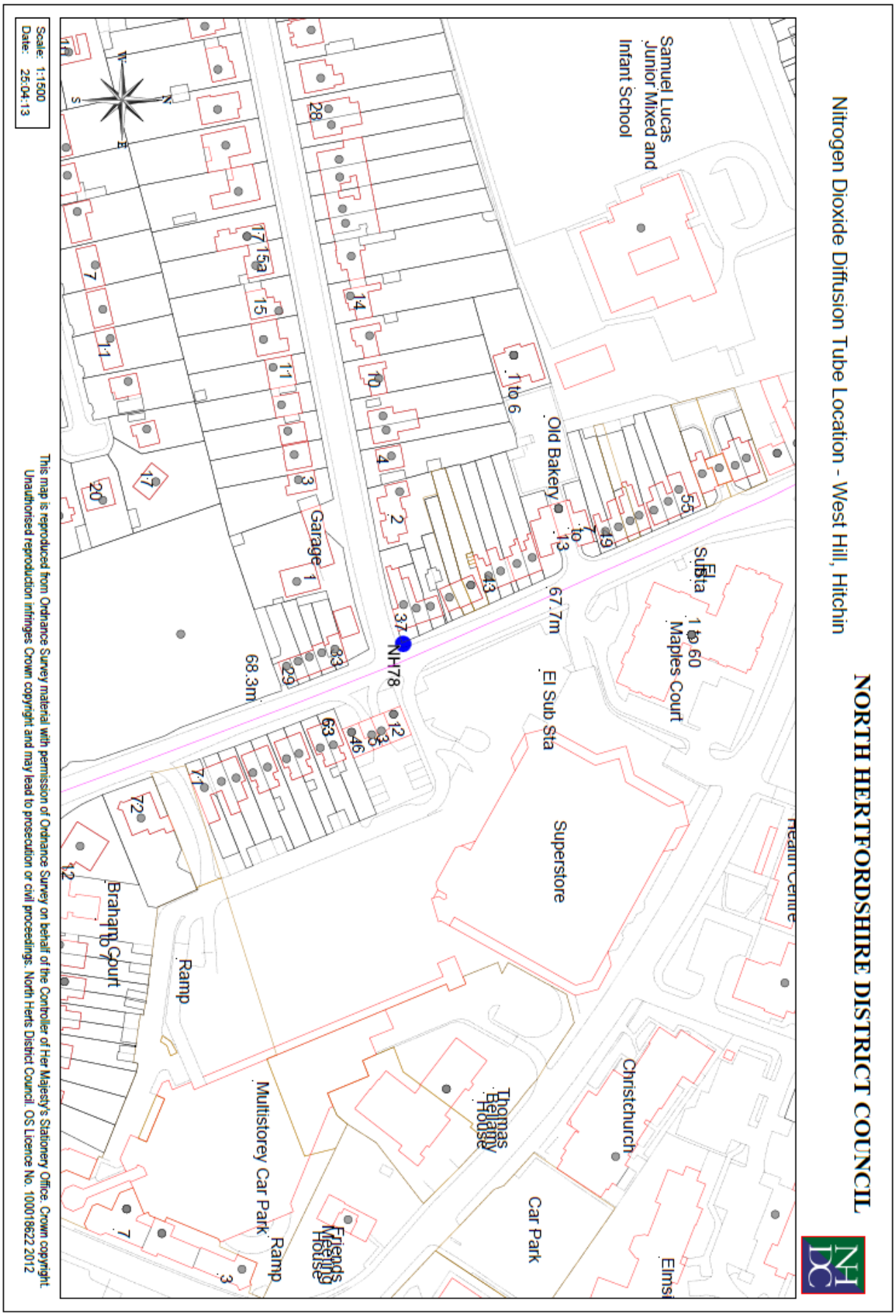


Figure D11: Diffusion Tube Monitoring Location (NH78) at West Hill Hitchin – 2022

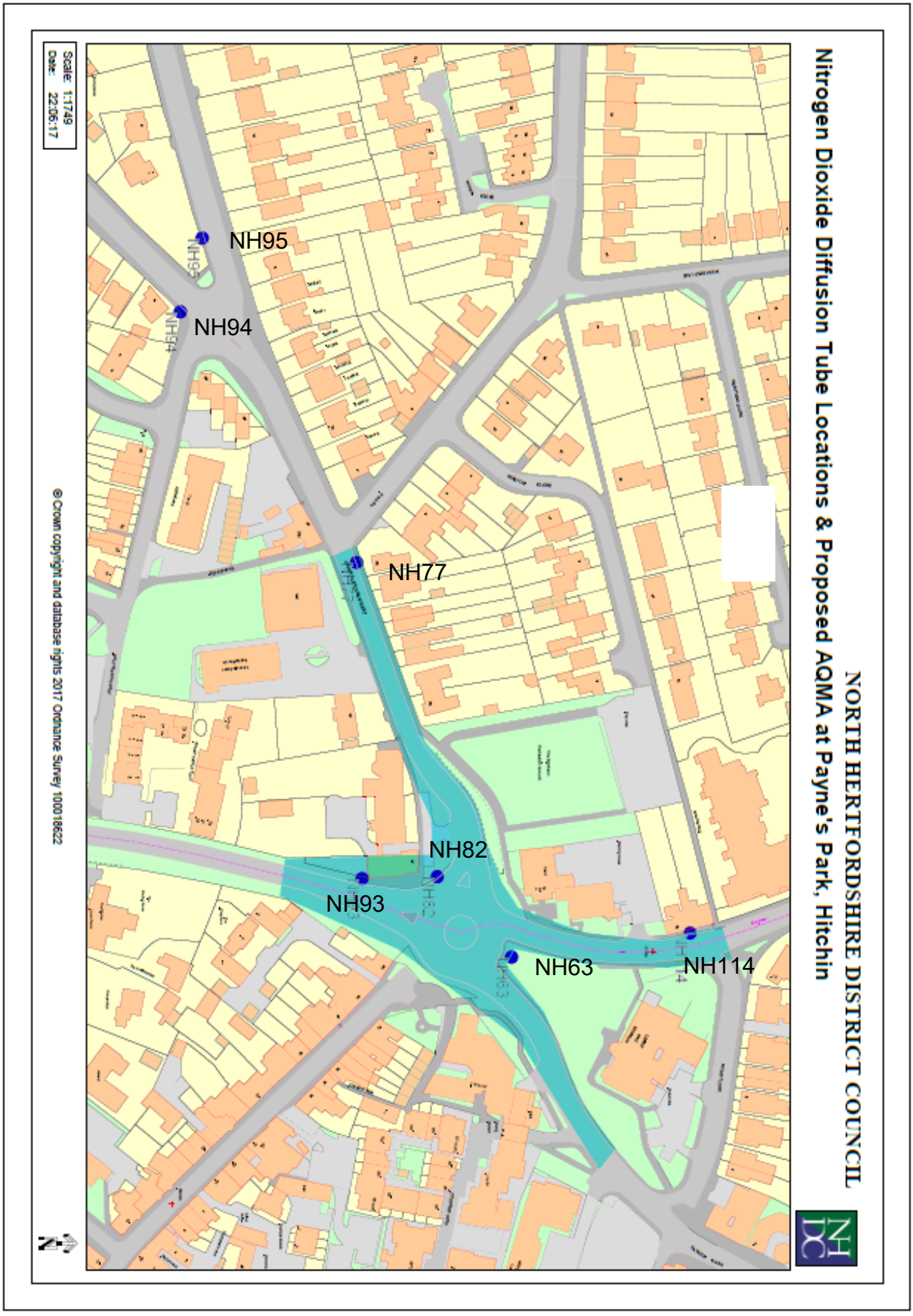


Figure D12: Diffusion Tube Monitoring Locations (NH93- NH95, NH77, NH82, NH63 & NH114) & Extent of AQMA at Payne's Park, Hitchin – 2022

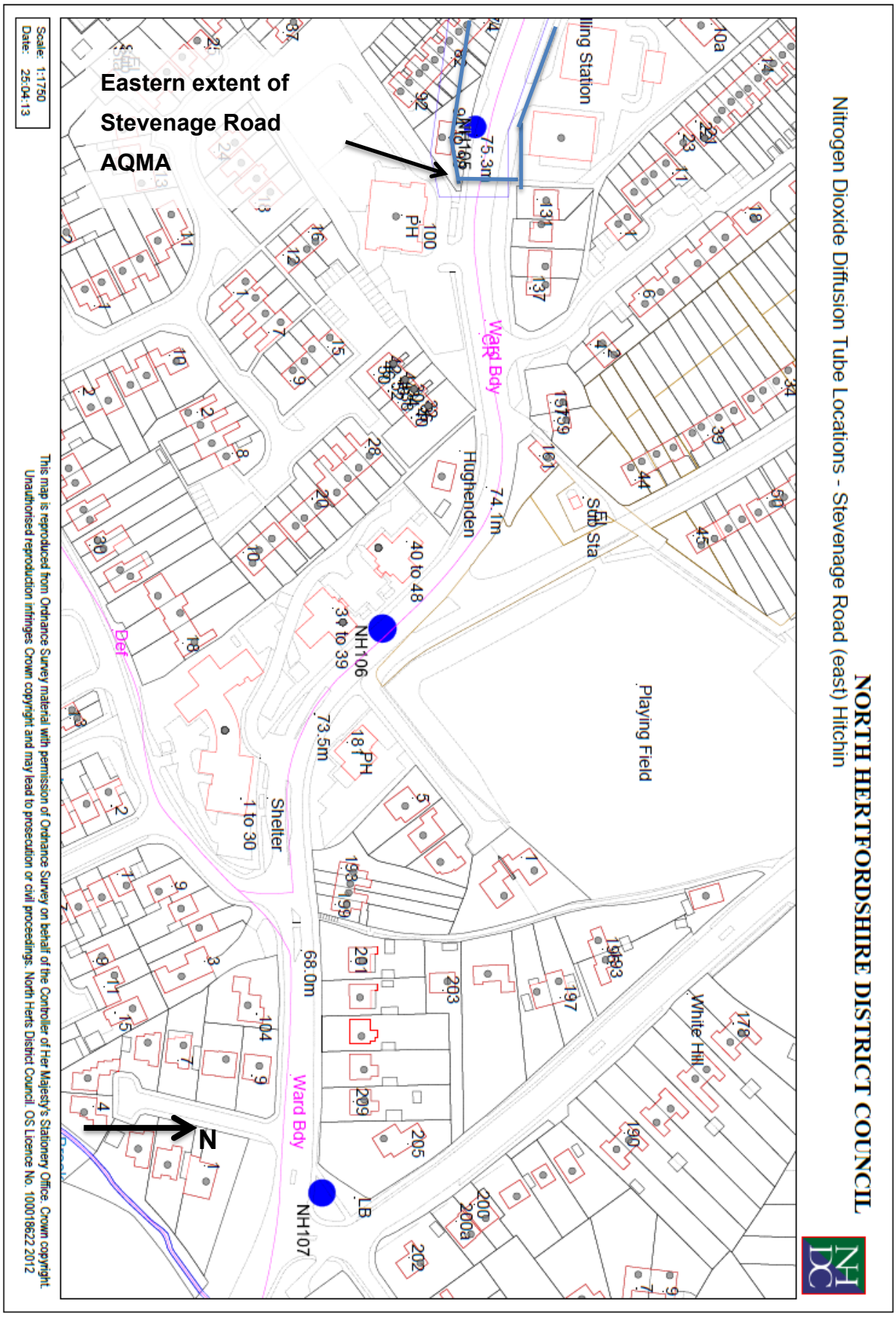


Figure D13: Diffusion Tube Monitoring Locations (NH105, NH106 & NH107) & Eastern Extent of the Stevenage Road AQMA at Stevenage Road, Hitchin – 2022

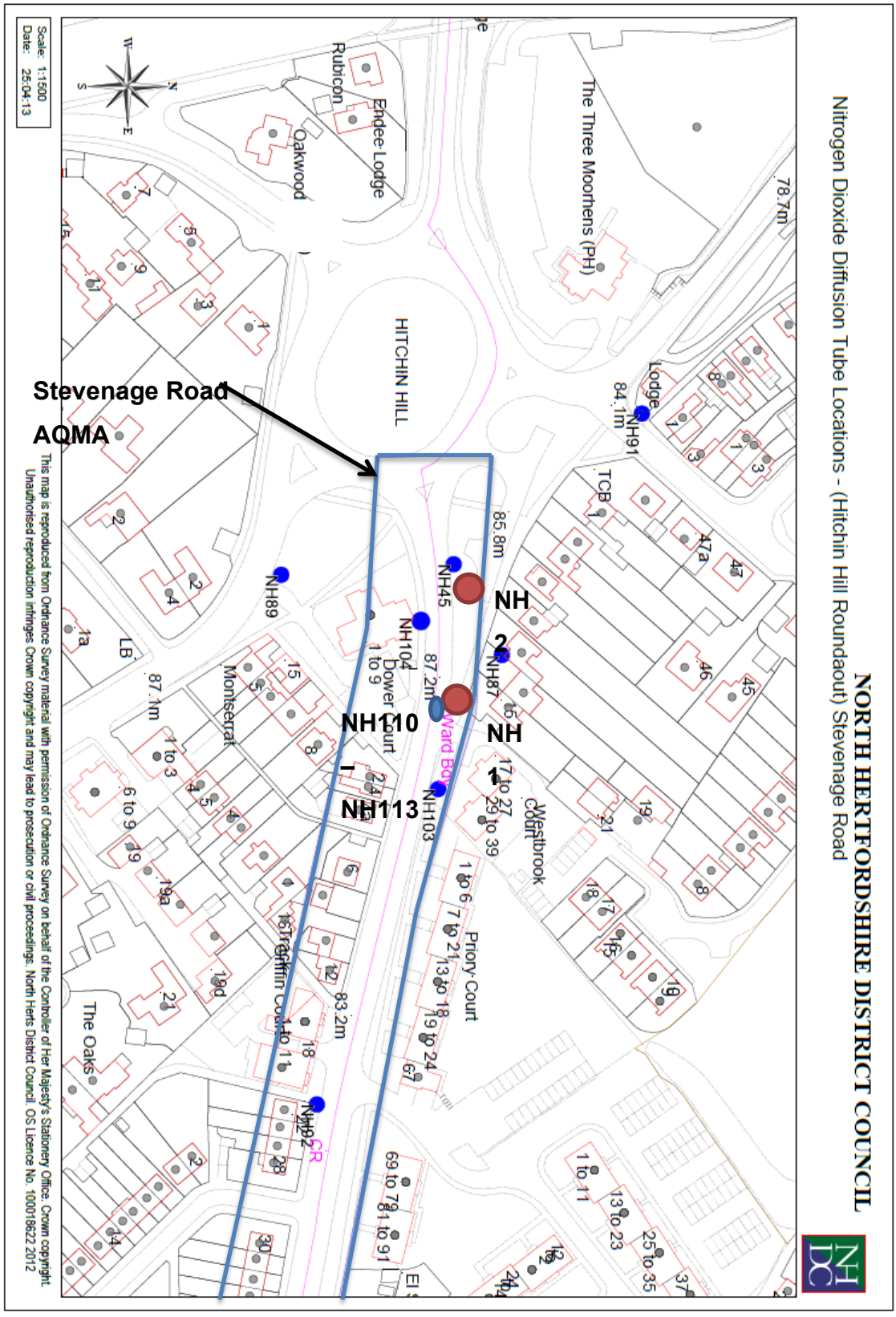


Figure D14: Diffusion Tube Monitoring Locations (NH45, NH87, NH89, NH91, NH92, NH103, NH104 & NH110-112), Real-Time Analyser Locations (NH1 and NH2) & the Stevenage Road AQMA at Stevenage Road, Hitchin – 2022

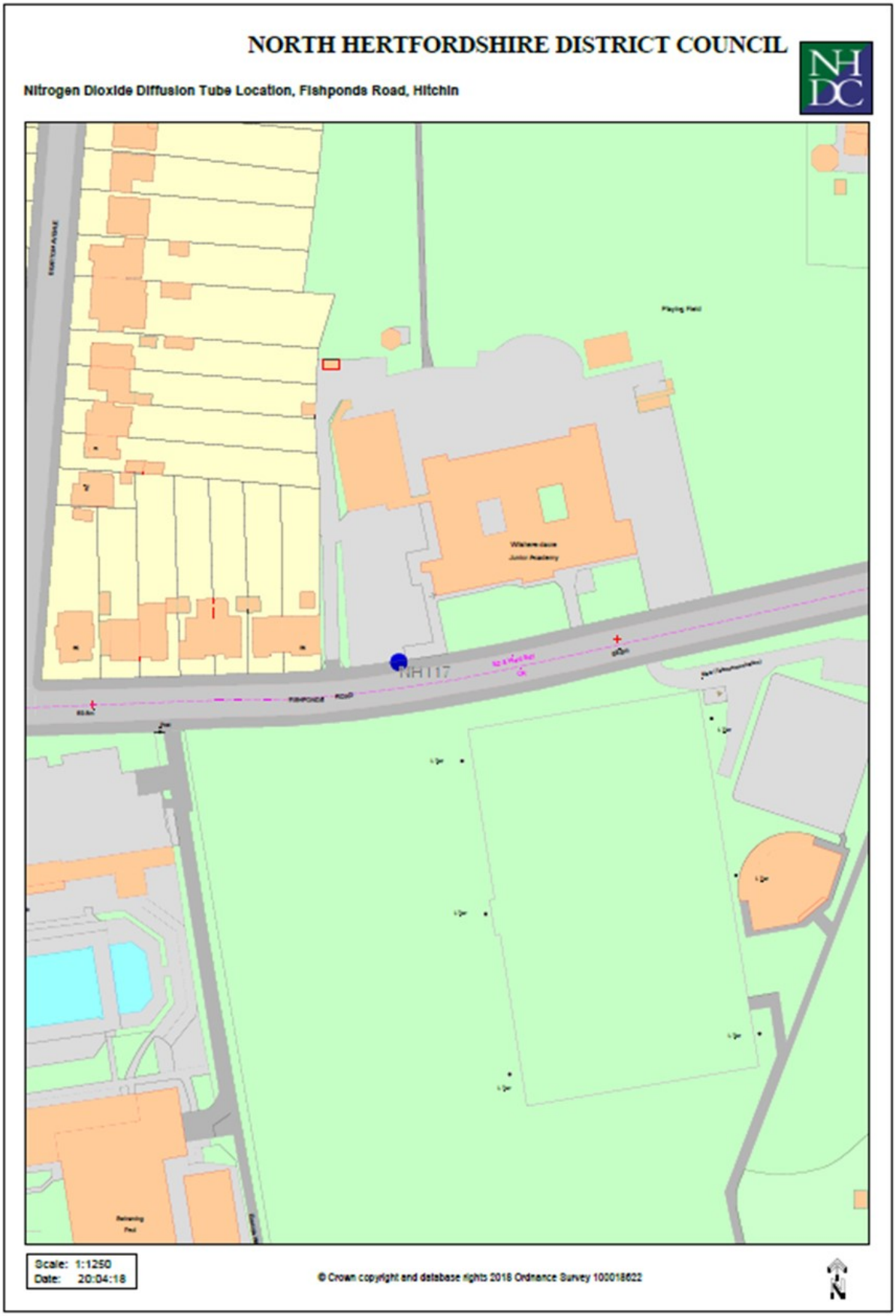


Figure D15: Diffusion Tube Monitoring Location (NH117) at Fishponds Road, Hitchin - 2022

Figure D16: Diffusion Tube Monitoring Location (NH118) at High Street (27), Graveley – 2022

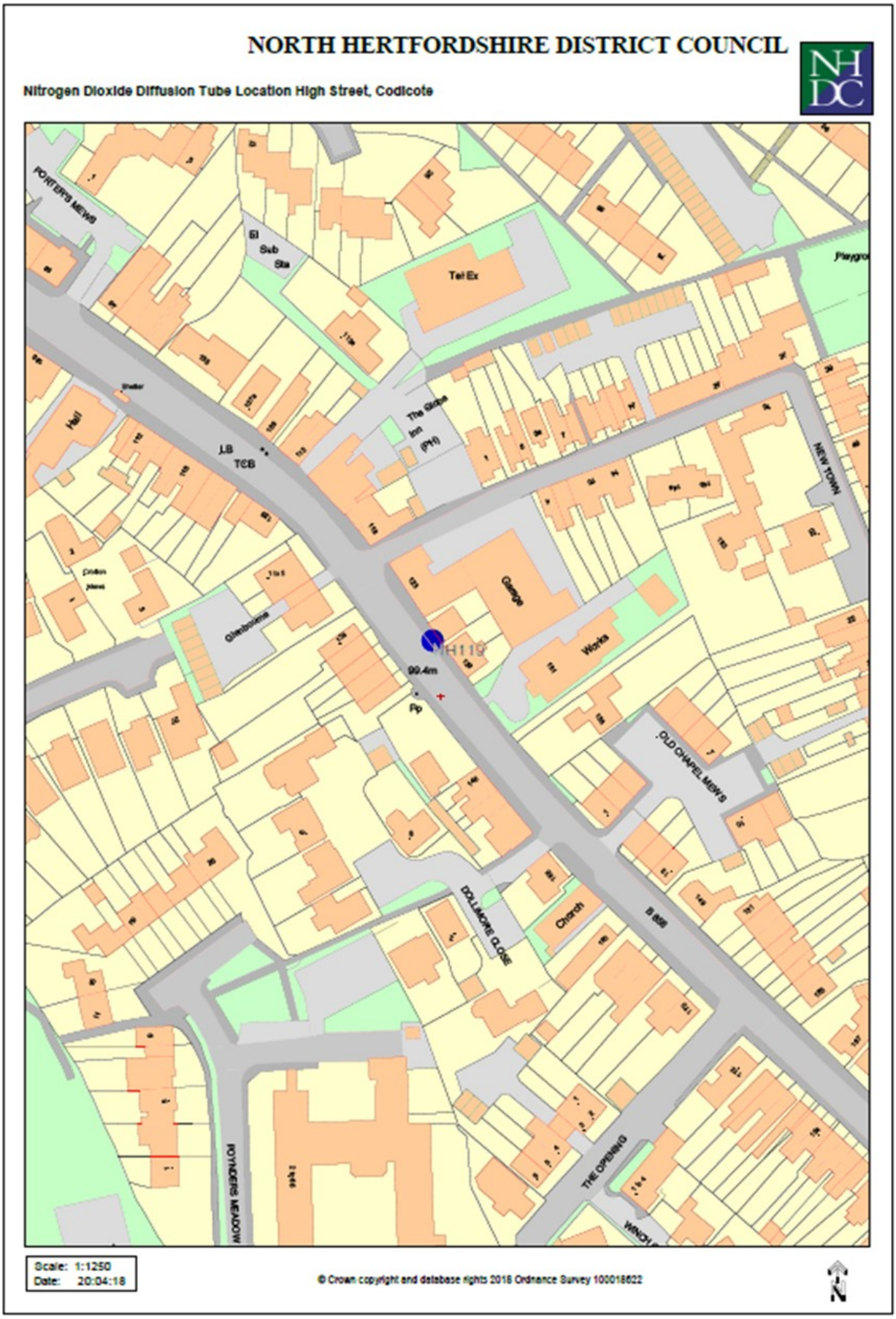


Figure D17: Diffusion Tube Monitoring Location (NH119) at High Street (125), Codicote - 2022

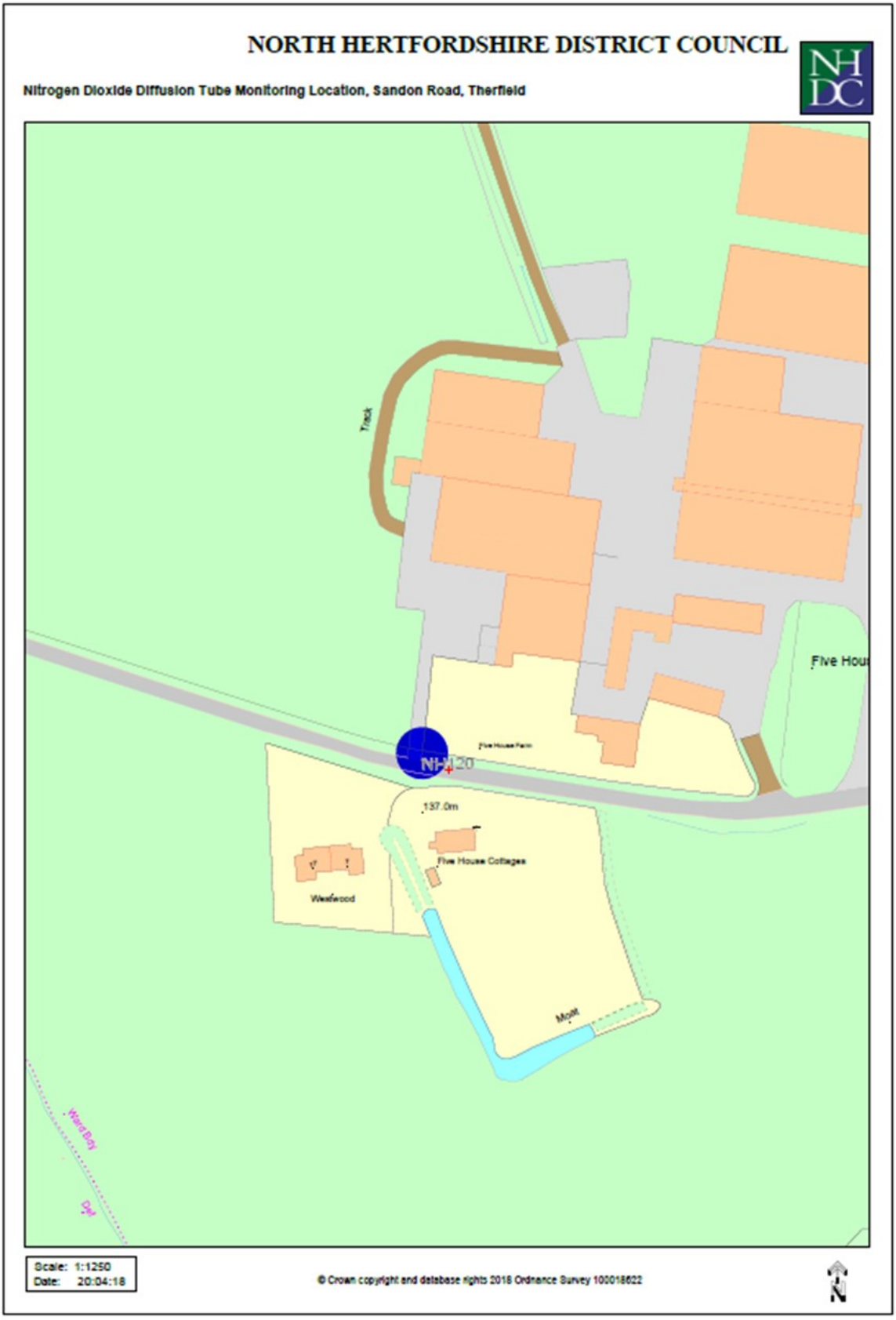


Figure D18: Diffusion Tube Monitoring Location (NH120) at Five House Farmhouse, Sandon Lane, Therfield - 2022

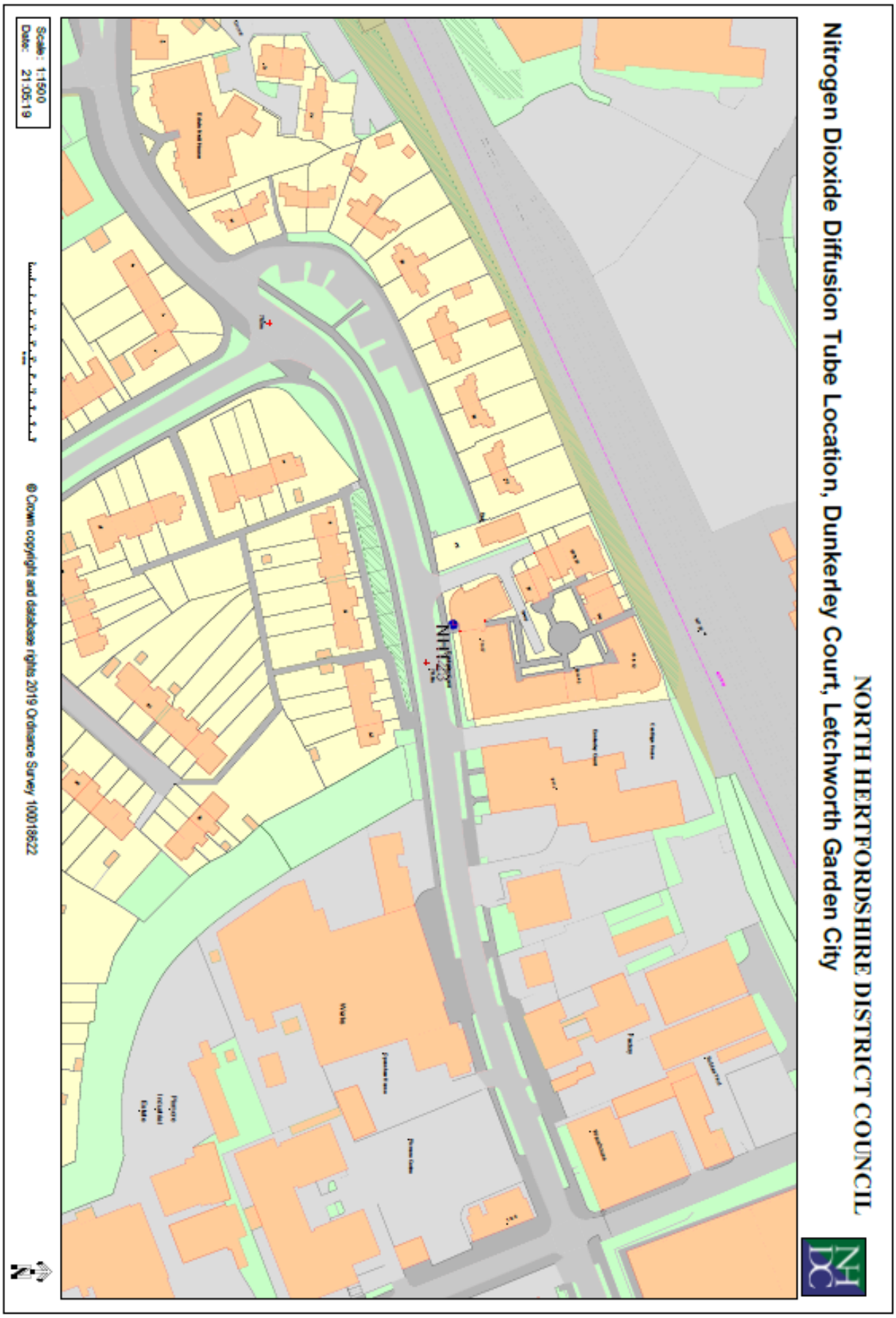


Figure D19: Diffusion Tube Monitoring Location (NH123) at Dunkerley Court, Letchworth Garden City - 2022

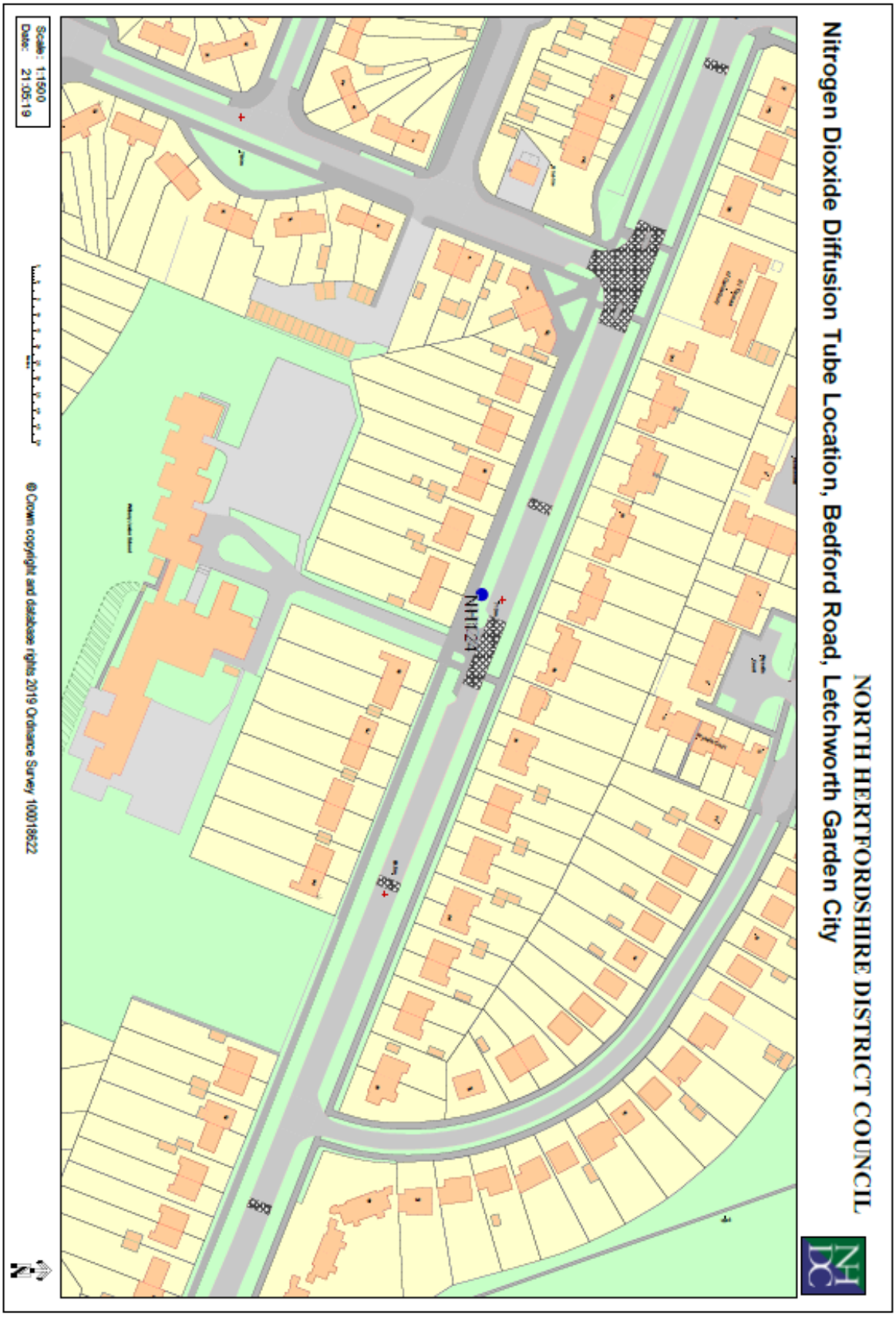


Figure D20: Diffusion Tube Monitoring Location (NH124) at 82 Bedford Road, Letchworth Garden City - 2022

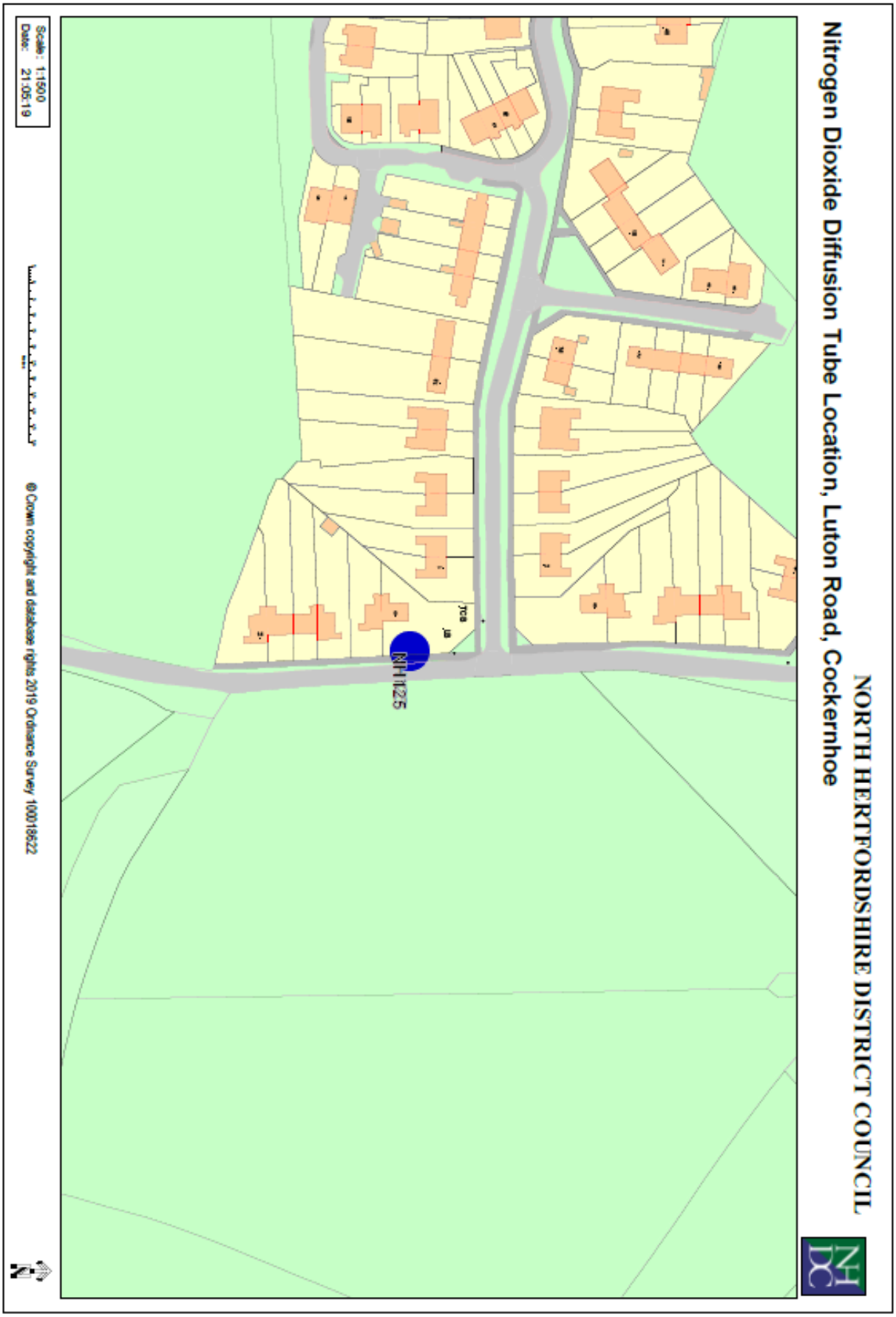


Figure D21: Diffusion Tube Monitoring Location (NH125) at 11 Luton Road, Cockernhoe - 2022

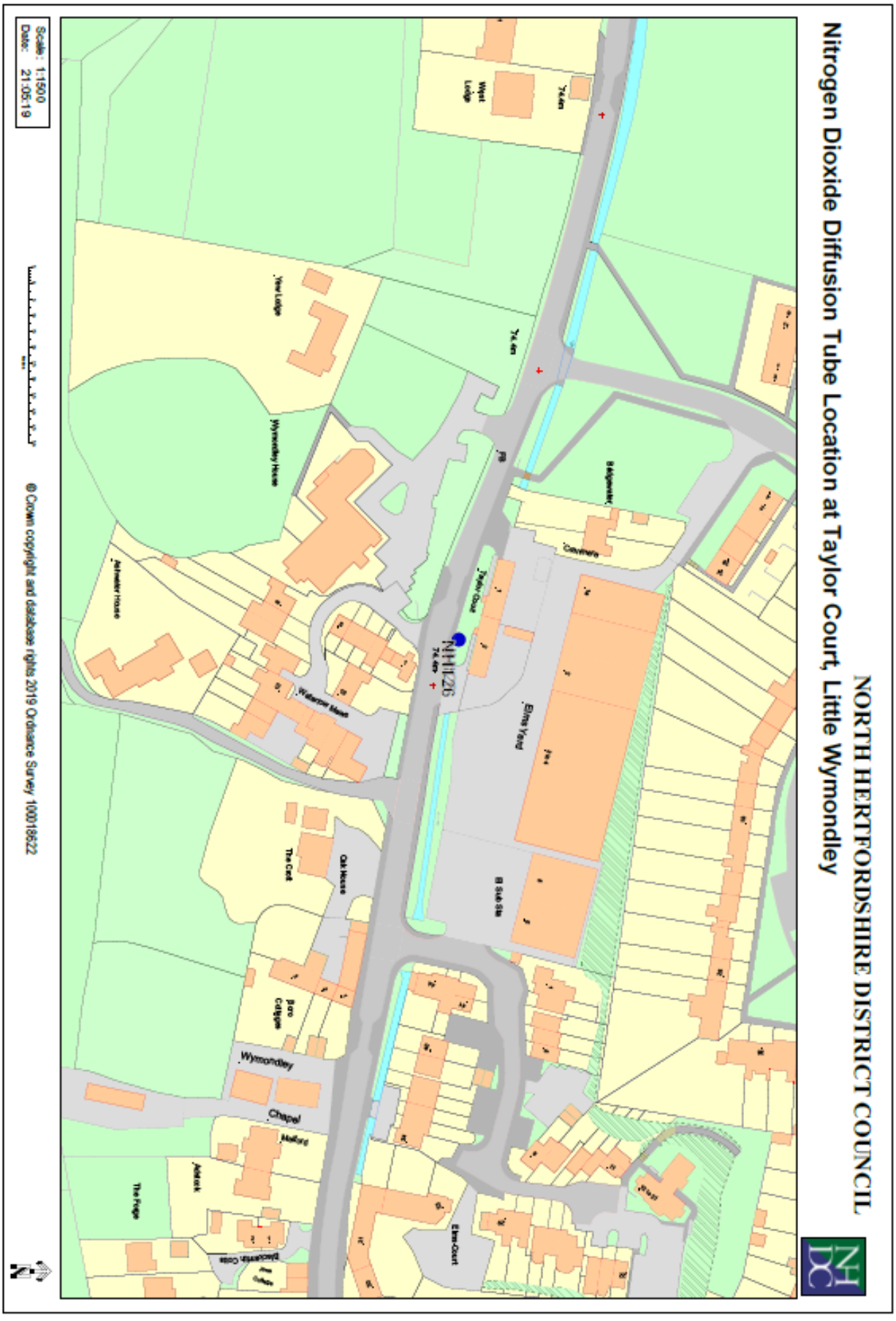


Figure D22: Diffusion Tube Monitoring Location (NH126) at 2 Taylor Court, Little Wymondley - 2022

Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[8]

Pollutant	Air Quality Objective: Concentration	Air Quality Objective: Measured as
Nitrogen Dioxide (NO_2)	200µg/m^3 not to be exceeded more than 18 times a year	1-hour mean
Nitrogen Dioxide (NO_2)	40µg/m^3	Annual mean
Particulate Matter (PM_{10})	50µg/m^3, not to be exceeded more than 35 times a year	24-hour mean
Particulate Matter (PM_{10})	40µg/m^3	Annual mean
Sulphur Dioxide (SO_2)	350µg/m^3, not to be exceeded more than 24 times a year	1-hour mean
Sulphur Dioxide (SO_2)	125µg/m^3, not to be exceeded more than 3 times a year	24-hour mean
Sulphur Dioxide (SO_2)	266µg/m^3, not to be exceeded more than 35 times a year	15-minute mean

[8] The units are in microgrammes of pollutant per cubic metre of air (µg/m^3).

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by National Highways
EU	European Union
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO_2	Sulphur Dioxide

References

- Local Air Quality Management Technical Guidance LAQM.TG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- Local Air Quality Management Policy Guidance LAQM.PG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.

[i] https://www.hertfordshire.gov.uk/services/recycling-waste-and-environment/planning-in-hertfordshire/transport-planning/local-transport-plan.aspx

[ii] https://www.north-herts.gov.uk/files/ed14-nhdc-transport-strategy-october-2017pdf-0