



2022 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the Environment Act 1995
Local Air Quality Management

September 2022

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|-------------------------|------------------------------------------------------------------------------|
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| Report Reference Number | NHC ASR_2022 |
| Date | September 2022 |

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 28,000 to 36,000 deaths at typical ages³, with a total estimated healthcare cost to the NHS and social care of £157 million in 2017⁴.

Air Quality data for 2021 has again been influenced by the effects of the Covid-19 pandemic, as reported in the ASR for 2020 data. Road traffic levels as the prime contributor to roadside air quality have not returned to pre-pandemic levels in 2019. Therefore, this year, along with 2020 cannot be considered typical for the purposes of long-term comparisons, in relation to achievement of air quality objectives.

The local air quality monitoring strategy has remained in place, a final review of the status of the districts two AQMAs in Hitchin cannot be completed as yet due to the significant construction of new dwellings and employment areas as a result of both our own and Stevenage's Local Plans. The impact of these will need to be fully assessed as will the return to 'normal' following the previous years where air quality was significantly affected by Covid, as a result of 'lockdowns' and changes in commuting and working patterns. The significant expansion proposals both in the short, medium and long term for London Luton Airport also need to be fully assessed and monitored.

The Council received the Inspector's final report to the Local Plan on 8 September 2022 and will be the subject to Full Council in the late Autumn regarding the adoption of the Local Plan. Hertfordshire County Council are liaising with the District Authorities in the

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, July 2021

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

development of a draft EV Charging Strategy for on-street charging which is expected to be finalised towards the end of 2022.

Historically there have been two areas where pollution concentrations for nitrogen dioxide, close to busy road junctions in Hitchin have exceeded air quality objectives, resulting in declarations of Air Quality Management Areas on Stevenage Road (AQMA 2012) and Payne's Park Roundabout (AQMA 2017), both along the A602.

The latest, (post-pandemic) trends from long term monitoring sites show significant improvements in air quality at most monitoring sites. For the Stevenage Road AQMA, close examination of monitoring results highlights that pollution levels closest to the Hitchin Hill Roundabout have now fallen below objective levels, and results over the last 5 years, when corrected for relevant exposure are all below objective levels. For the Payne's Park AQMA there is a single monitoring site (NH93) within the AQMA, that remains above objective levels when corrected for relevant exposure, (for data 2019-21).

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

Stevenage Road AQMA

- No results above objectives for 5 years in succession (2021,2020,2019, 2018,2017).
- No results within 10% of objective levels in the last four years (2021,2020, 2019, 2018)

Payne's Park AQMA (Incomplete data for 2020)

- Two years with results above objectives in last 5 years (2018, 2017)
- 3 of last 5 years with results within 10% of objective levels (2019,2018,2017)

In summary these results could suggest revocation however given the unknown pattern of commuting post Covid and the significant construction associated with both North Herts and Stevenage's Local Plans, together with the significant expansion plans for London Luton Airport, that will directly impact these areas, the following is recommended in relation to the continued status of these AQMAs.

Stevenage Road AQMA

- Recommend this AQMA should continue in order to have robust data around the return to 'normal' commuting post Covid and the impact of the construction and new dwellings and employment areas associated with our own and adjacent Local Plans and the proposed expansion to London Luton Airport

Payne's Park AQMA

- Retain the current AQMA. Continue of monitoring as discussed above

For Both AQMA sites

Review of monitoring locations within and close to each AQMA to provide evidence to review status of each AQMA.

Emissions from road transport along the A602 have been responsible for designation of both these AQMAs.

The locations of the AQMAs can be found in Appendix D, the formal designations can be found at <http://www.north-herts.gov.uk/home/environmental-health/pollution/air-quality/air-quality-management-areas-north-hertfordshire> 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 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 it is reviewed in Section 2 of this report.

The improvements in air quality reflected in the monitoring results at both AQMAs, are clearly a combined result of policies operating at a national, regional, and local levels. The reduction in levels of road traffic attributed to the pandemic, show a marked impact on the most recent monitoring results. This is in addition to specific measures developed in the joint Action Plan that have contributed to reductions in emissions from road transport, resulting in the improvements in local air quality now being recorded.

The continued status of both AQMAs for the next year, highlights the need for continued action to support measures that contribute to improving air quality in AQMA hotspots and maintaining air quality below objective levels in all other areas.

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 revised strategy sets out how the council plans to meet this target as well as its target of reaching net zero for its own operations by 2030.

It builds upon previous iterations and on the Climate Emergency motion that was passed by the Council.

The Strategy's three priorities 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.**
- **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 Fund.**
- **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.**

Further actions proposed by the Climate Change Strategy and relating to air quality include:

- Begin transitioning to zero emission council vehicles as leases come up for expiry from 2025
- Reduce staff and Councillor business travel through use of Zoom and similar technologies as much as possible, and reduce staff commuting through home working as much as practical
- Explore opportunities around low-emission refuse freighters
- Quantify how much land we would need to plant trees on to offset 5% of the Council's 2019/20 carbon emissions, and work towards this goal as is feasible
- 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 are presented in the [Council Plan](#) and NHDC [Cabinet approved proposals](#).

As reported in the 2021 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.

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 and will continue to improve due to national policy decisions, there are some areas where local action is needed to improve air quality further.

The 2019 Clean Air Strategy⁵ sets out the case for action, with goals to reduce exposure to harmful pollutants. The Road to Zero⁶ sets out 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 2021-26 sets out the actions that the Council will take to achieve this goal and states our/their objectives of achieving a net zero carbon district by 2040 and of 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 begun the process for procurement of additional EV charging points in Council Car Parks. Alongside a developing strategy for EV infrastructure on a County-wide basis, these initiatives are expected to provide the basis for the ongoing expansion of EV charging infrastructure.

As part of the Council's emerging 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 LTP4ⁱ. This includes a commitment to a transport user hierarchy, which seeks to prioritise active and sustainable modes of travel.

⁵ Defra. Clean Air Strategy, 2019

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

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 that were progressed or achieved in 2020 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 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 Council's Community Safety Team replaced their vehicles with new, hybrid, Ultra Low Emission Vehicles
- Regular Transport Forum meetings now taking place to engage with the local community about public transport.

- Carried out a consultation to inform the development of an Electric Vehicle Strategy and now looking at options for electric vehicle charging infrastructure.
- 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.
- Letchworth Garden City and Royston have been approved for inclusion in the first round of the Sustainable Travel Towns Programme.
- 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 early 2023. 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 LCWIP is due to go out for a 6-week consultation in September 2022.

The Climate Change Strategy also has the following proposed actions due for delivery between 2021 and 2026 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 (2022); and encourage contractors to adopt similar measures
- Begin transitioning to zero emission council vehicles as leases come up for expiry from 2025
- Reduce staff and Councillor business travel through use of Zoom and similar technologies as much as possible
- Reduce staff commuting through home working as much as practical

- Explore opportunities around low-emission refuse freighters
- Explore the creation of a 5-Year Plan to reduce emissions from the waste fleet
- As part of the 'Sustainable North Hertfordshire' programme, 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 2021 NHDC has engaged on the following:

- Continued in the preparation of work to support the procurement of additional electric vehicle charging infrastructure in Council Car Parks in 4 key towns.
- Engaging with Government Grant making body OZEV, EST Energy Savings Trust, and UKPN, the Power Network provider.
- Joining a Local Authority Procurement Framework for Electric Vehicle Charging Infrastructure EVCI
- Launched the EcoStars Programme, promoting the uptake of Ultra Low Emission Vehicles
- The Herts & Bedfordshire Air Quality Forum
- The Public Health Board at HCC

The NHC Local Plan examination has closed with the submission of the Inspector's final report on 8 September 2022 and will be the subject for adoption by NHC Full Council in November 2022. The Local Plan is updating 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, smoothing flows, reducing speeds in the towns and providing better facilities for walking, cycling and buses.*

[Ref: NHDC Transport Strategy Section 5.9ⁱⁱ]

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 main 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.

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 Change and Sustainability Officer Group, 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.

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:

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1 Local Air Quality Management

This report provides an overview of air quality in North Hertfordshire during 2021. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995) 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 pursuit of the objectives. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by North Hertfordshire 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 (AQMA) 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 12 months setting out measures it intends to put in place in pursuit of compliance with the objectives.

A summary of AQMA 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.

Further information related to declared or revoked AQMA, including maps of AQMA boundaries are available online at <https://www.north-herts.gov.uk/home/environmental-health/pollution/air-quality/air-quality-management-areas-north-hertfordshire>.

A full list of AQMA in England can be found at <https://uk-air.defra.gov.uk/aqma/list>.

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

- NO₂ annual mean

We propose to continue to monitor Stevenage Road, Hitchin (see monitoring section).

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

Stevenage Road AQMA (Declared June 2012)

- We propose to continue monitoring this AQMA in 2022-3.

Payne's Park AQMA (Declared January 2017)

- We propose to continue monitoring this AQMA in 2022-23

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 National Highways? | Level of Exceedance: Declaration | Level of Exceedance: Current Year | Name and Date of AQAP Publication | Web Link to AQAP |
|-------------------------------------|------------------------------|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|----------------------------------|-----------------------------------|------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AQMA 1 Stevenage Road HITCHIN | 29 th 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/m ³ | 31ug/m ³ | Joint Action Plan Stevenage Road & Payne's Park, Hitchin AQMA's 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 | 9 th 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/m ³ | 26.9ug/m ^{3**} | Joint Action Plan Stevenage Road & Payne's Park, Hitchin AQMA's 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 2022.

There were no significant comments recorded, requiring further attention.

North Hertfordshire District Council (NHDC) has taken forward several direct measures during the current reporting year of 2021 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 2021 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.

Hertfordshire County Council initiated the Sustainable Travel Town programme, which will be starting in Royston and Letchworth this year. The outline plans were produced at the end of 2021 and can be accessed here under agenda item 61:

[Agenda for Cabinet on Tuesday, 21st December, 2021, 7.30 pm | North Herts Council \(north-herts.gov.uk\)](#)

Progress on active travel projects is set out here:

[Improving walking and cycling across Hertfordshire \(Active Travel Fund\) | Hertfordshire County Council](#)

There are 8 completed travel plans across business and residential sites in North Herts.

We currently have 4 sites with travel plans that are active in North Herts. There are an additional 4 sites which have not yet been occupied but travel plans have been completed.

The 4 sites with active travel plans are:

1. Avenue one (civic centre south) – a commercial site with retailers.

julian@jmsplanning.com

2. Hitchin Cricket and Hockey Club (Bowlers End) – a small residential site. Have joined Modeshift STARS platform and actively working to achieve award for sustainable travel. rusne@limetransport.com
3. Mettler Toledo – workplace site. Have joined Modeshift STARS platform and actively working to achieve award for sustainable travel. Nick.ewers@mt.com
4. Aldi (land between A505 and York Way , Royston Gateway). lona.sapsed@aldi.co.uk

All sites are working towards a minimum modal shift of 10% away from car use. Each site employs a Travel Plan Coordinator.

Key completed measures are:

The first stage of the EcoStars Programme has been to review the Council and it's immediate supply chain.

- As part of their carbon reduction and air quality strategy the Council have engaged TRL to pilot a business behaviour change programme for commercial vehicle operators
- The programme is being delivered under the banner of the ECO Stars Fleet Recognition Scheme which has been running on a regional basis in parts of the UK since 2010. <https://www.ecostars-uk.com/>
- In the simplest terms the scheme engages with local fleet operators to:
 - o Encourage adoption of industry good practice to reduce fuel consumption through better fuel management
 - o Signpost the use of alternative fuels
 - o Awards certificates on a score of 1 to 5 for participant businesses

The Council has attained the highest level of membership as they are adopting EVs exclusively.

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

- Completion of EcoStars Programme following engagement with businesses in Hitchin Industrial Estate. Expected to promote dialogue with business users in Hitchin on uptake of ULEVs.
- Local Cycling and Walking Infrastructure Plan. Expected to provide a focus on further developments in cycling and walking infrastructure in the District.
- Completion of 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

North Hertfordshire District Council worked to implement these measures in partnership with the following stakeholders during 2021:

- 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:

- All measures affected to a degree by reduced activities during pandemic lockdown

North Hertfordshire Council anticipates that the measures stated above and in Table 2.2 will achieve compliance in AQMA 1 and AQMA2 no later than 2023.

Table 22 – Progress on Measures to Improve Air Quality

| Measure No. | Measure | Category | Classification | Year Measure Introduced | Estimated / Actual Completion Year | Organisations Involved | Funding Source | Defr a AQ Gran t Fun ding | 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 runs to 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 16 schools in North Herts registered with Modeshift STARS. 7 of these are holding an accredited travel plan. Bronze accreditation – for a Good Travel Plan: Ashwell Primary Codicote Primary Hillshott Infant & Nursery Knebworth Offley Wymondley JMI Gold accreditation – for an Excellent Travel Plan – William Ransom Stonehill | 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 to go out for a 6-week consultation in Sept 2022 | 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 | Out for consultation in September 22 | Not defined | Not defined | The Strategic Planning team are currently producing an LCWIP, (Local Cycling and Walking Infrastructure Plan) in partnership with HCC for the District; LCWIP to draft a cycling network. Site auditing from September 2021 | Local Urban Transport Plans outline detailed schemes for improving cycling and walking infrastructure across major urban districts. |
| 4a | Promotion of Walking & Cycling in accordance with COVID 19 Social Distancing Measures | Promoting Travel Alternatives | Promotion of walking and cycling | 2020 | 2021 | Hertfordshire County Council Transport | DfT High Street Fund, ERDF Funding, | NO | Funded | £10k - 50k | Completed | Not defined | Not defined | Completed | Continue to work with HCC, and limitations to funding opportunities from Local Govt. |
| 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 | Awaiting application | £20k - £100k | Procurement via Kent EVCI Framework | Reductions in emissions due to take up of ULEVs | Number of EV chargepoints in NHDC car parks | Registered with Kent EVCI Framework, entering competition phase | Funding and contractual issues for procurement |

| Measure No. | Measure | Category | Classification | Year Measure Introduced | Estimated / Actual Completion Year | Organisations Involved | Funding Source | Defr a AQ Gran t Fun ding | Funding Status | Estimated Cost of Measure | Measure Status | Reduction in Pollutant / Emission from Measure | Key Performance Indicator | Progress to Date | Comments / Barriers to Implementation |
|-------------|----------------------------------------------------------------------------------------------------|---------------------------------------|---------------------------------------------------------------------------|-------------------------|------------------------------------|-------------------------------------------------------------------------------|----------------------------|---------------------------|-----------------------------------------------------------------------------------------|---------------------------|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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, which does not support large scale on street charging | Current County Council EV Charging Strategy does not favour on-street EV charging |
| 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 | Under consideration to review by end of 2022 | 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 scheme is identified as a package in the HCC adopted North Central Growth Transport Pan. This scheme is to be investigated as part of the A505 corridor study, which will include an assessment of the movement of commercial vehicles to/from the industrial estate to better understand the needs for potentially additional accesses for all users. | Subject to further investigation by HCC, and funding options to be considered. |
| 13 | Engage with Herts CC on development of | Traffic Management | Strategic highway improvements, Re-prioritising Road space | 2017 | 2022 | North Hertfordshire Environmental Protection Team via | LTP = 2018/19 & GTP = 2019 | No | Via LTP/GTP | Not defined | County Council have a tool to prioritise | Not defined | Not defined | Consultation responses have strengthened | NHDC is only able to influence decision making by way of |

| Measure No. | Measure | Category | Classification | Year Measure Introduced | Estimated / Actual Completion Year | Organisations Involved | Funding Source | Defr a AQ Gran t Fun ding | Funding Status | Estimated Cost of Measure | Measure Status | Reduction in Pollutant / Emission from Measure | Key Performance Indicator | Progress to Date | Comments / Barriers to Implementation |
|-------------|--------------------------------------------------------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------------------------------------|-------------------------|------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|---------------------------|----------------|------------------------------------------|-----------------------------------------------------------------------------------------------------|------------------------------------------------|-------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| | LTP4 & Local Growth & Transport Plan | | away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane | | | Hertfordshire County Council | | | | | projects over the entire county. | | | 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 in | 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 | Postponed in 2020 due to pandemic |
| 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 | Vehicle Retrofitting programmes | No progress | None | North Hertfordshire District Council & Herts CC & bus companies | Not defined | No | Not defined | Not defined | Ongoing | 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 | Engagement with transport operators |
| 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 | Air Quality for Schools Toolkit Resources are uploaded to the Herts Grid for learning. Codicote School was approached in the June to take part in our targeted Anti – Idling Campaign. | Toolkit is available needs to be effectively publicised within North Hertfordshire and need to have funding available to encourage its uptake |

| Measure No. | Measure | Category | Classification | Year Measure Introduced | Estimated / Actual Completion Year | Organisations Involved | Funding Source | Defr a 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 |
|-------------|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------|-------------------------|------------------------------------|-------------------------------------------------------------------|----------------|-------------------------|----------------------------|---------------------------|--------------------------|------------------------------------------------|----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| | | | | | | | | | | | | | | <p>The school displayed the recyclable Anti – Idling boards for half a term and shared the animation with their staff, parents, and pupils. The Anti-Idling video https://youtu.be/S9myTtrZ-s</p> <p>10 schools in Hitchin registered for our Walk to School Week and Clean Air Day campaigns, reaching 2,259 pupils</p> | |
| 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.PG16 (Chapter 7), 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.

2020 represents the fourth 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.

- The North Hertfordshire District Council Environmental Protection Officer is responsible for preparing an annual report on PM_{2.5} monitoring across Hertfordshire for Hertfordshire County Council's Public Health. The report based on the 2017 data is published at <http://www.airqualityengland.co.uk/local-authority/hnb-reports>

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.TG16 it is anticipated that:

- Measures to reduce emissions of NO_x 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 2021 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 2017 and 2021 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 sites during 2021. Table A.1 in Appendix A shows the details of the automatic monitoring sites. The Appendix A: Monitoring Results [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 NO₂ at 48 sites during 2021. 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 (NO₂)

Table A.3 and Table A.4 in Appendix A compare the ratified and adjusted monitored NO₂ annual mean concentrations for the past five years with the air quality objective of 40µg/m³. 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 2021 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 NO₂ hourly mean concentrations for the past five years with the air quality objective of 200µg/m³, 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 2020, all sites showed reductions, with no results above objective levels, reflecting the reduced traffic levels during the pandemic.

When corrected for distance, there are no monitoring results within the Stevenage Road AQMA above, and a single result (NH1) within 10% of the AQ objective.

On this basis continued monitoring for 2021 and 2022 is proposed until all results remain less than 90% of objective levels.

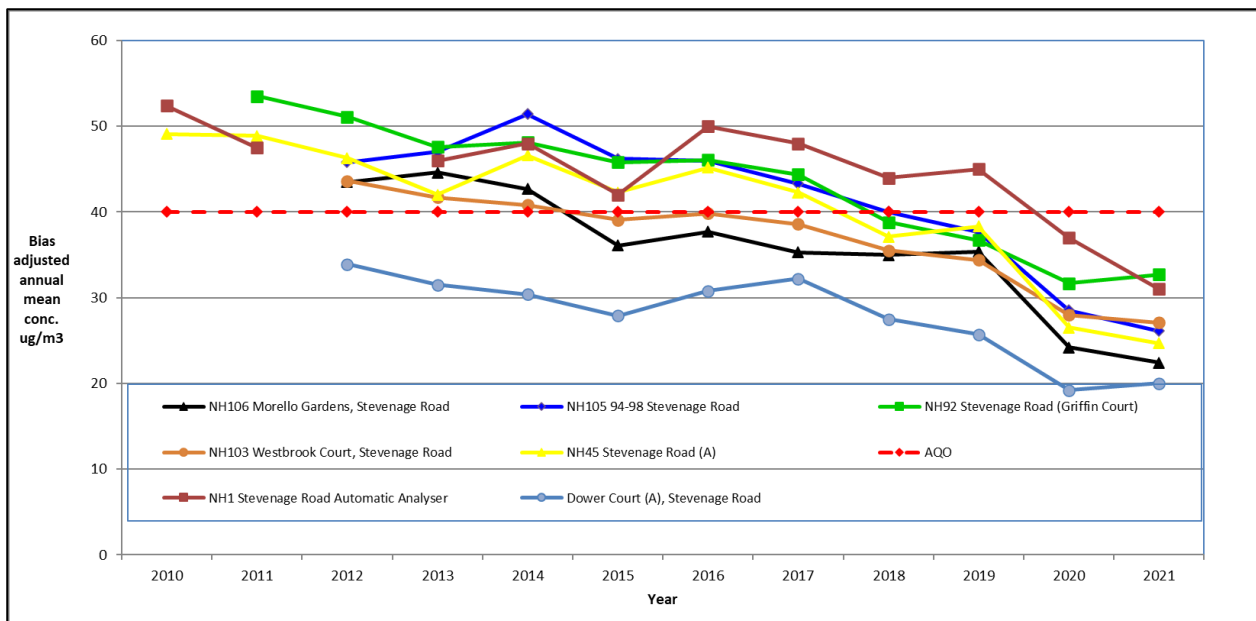


Figure 3.1: Trends in NO₂ concentrations at monitoring sites (all except NH106) located within the AQMA at Stevenage Road, Hitchin

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.

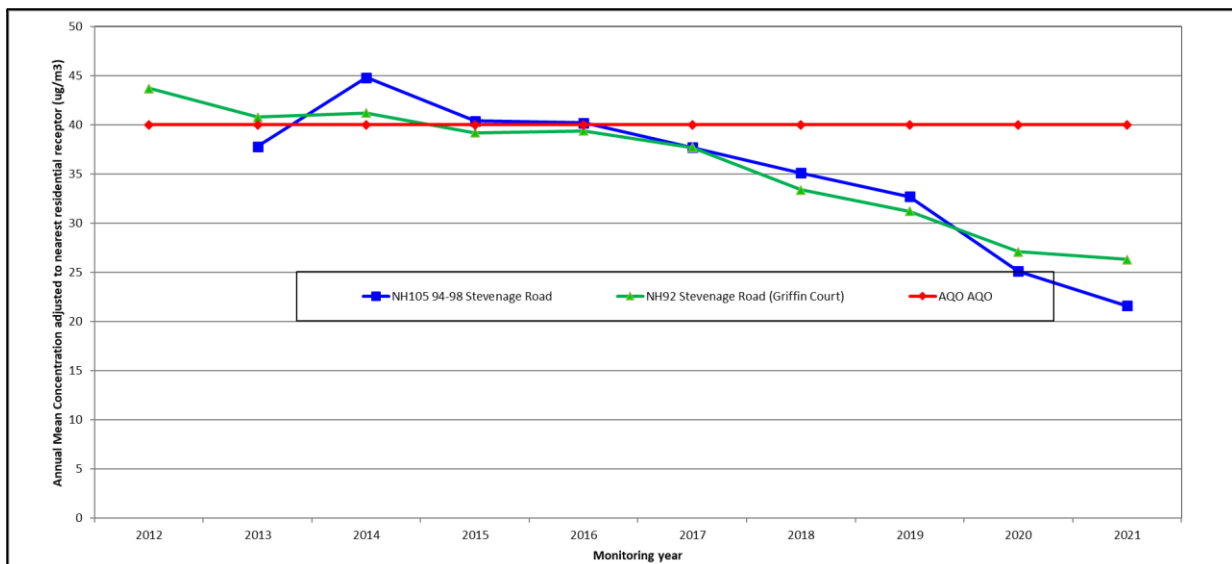


Figure 3.2: Trends in NO₂ concentrations monitored at NH105 and NH92 adjusted to be relevant to the nearest residential receptors

Figure 3.3 below, highlights trends for monitoring results within the Payne's Park AQMA up to 2021. The most recent results all highlight the continued trend of reductions in monitored levels of pollution at all sites, however, there has been a loss of some diffusion tube data for 2020-1, thus these results are not conclusive.

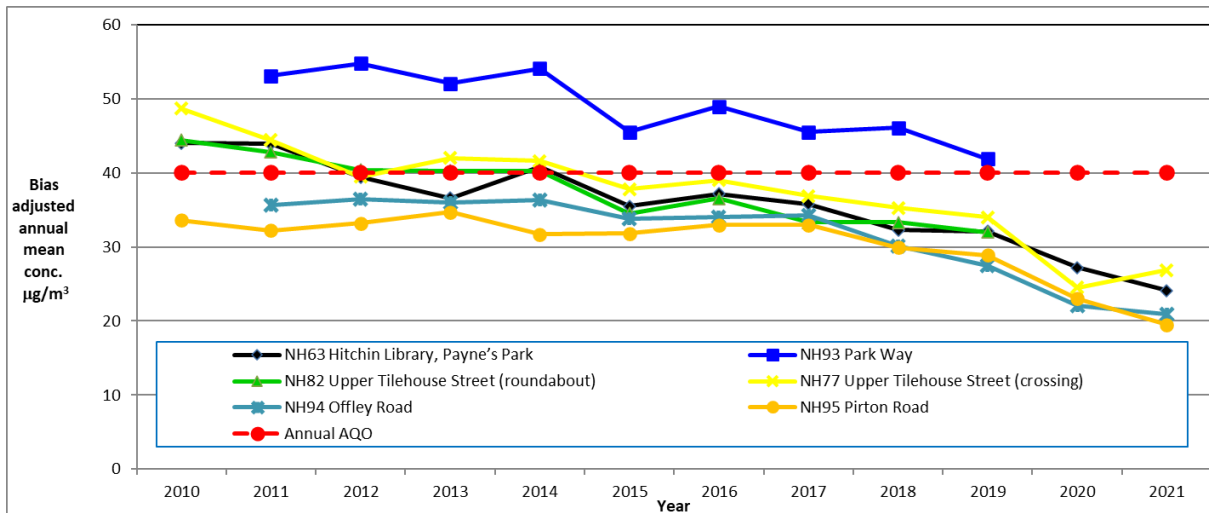


Figure 3.3: Trends in NO₂ concentrations at monitoring sites at Payne's Park, Hitchin

The monitoring site NH93, remains the critical receptor as representative of the only residential dwelling within the AQMA at 41 Upper Tilehouse Street. Due to loss of data during 2020-1, no result can be reported for 2021. The recent results to 2019 for NH93 (prior to distance correction are illustrated below in Figure 3.4).

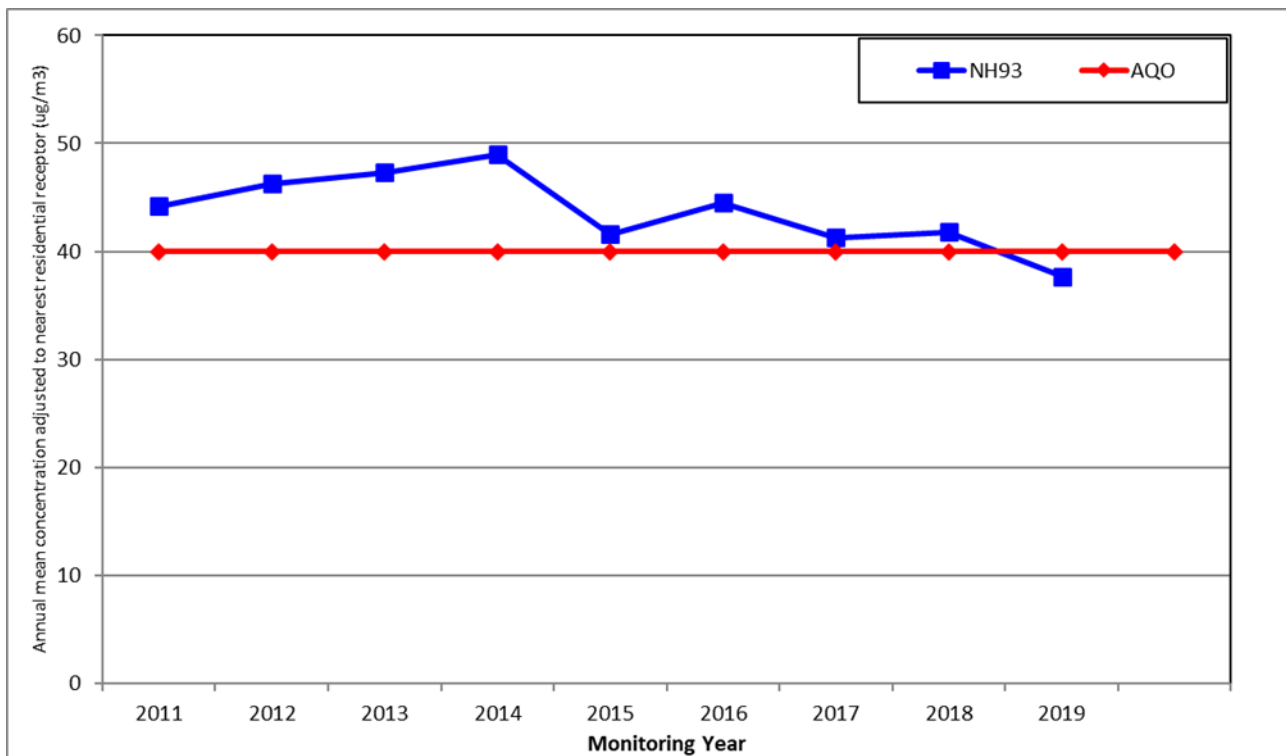


Figure 3.4: Trends in NO₂ concentrations monitored at NH93 adjusted to be relevant to the nearest residential receptor (41 Upper Tilehouse Street).

3.1.4 Particulate Matter (PM₁₀)

Table A.6 in Appendix A: Monitoring Results compares the ratified and adjusted monitored PM₁₀ annual mean concentrations for the past five years with the air quality objective of 40µg/m³.

Table A.7 in Appendix A compares the ratified continuous monitored PM₁₀ daily mean concentrations for the past five years with the air quality objective of 50µg/m³, not to be exceeded more than 35 times per year.

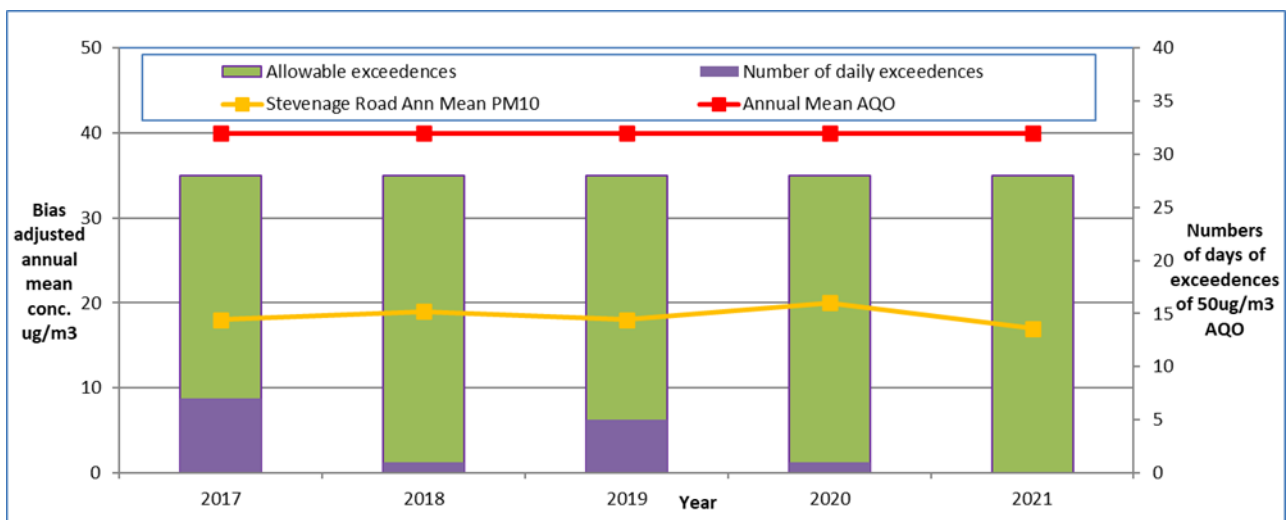
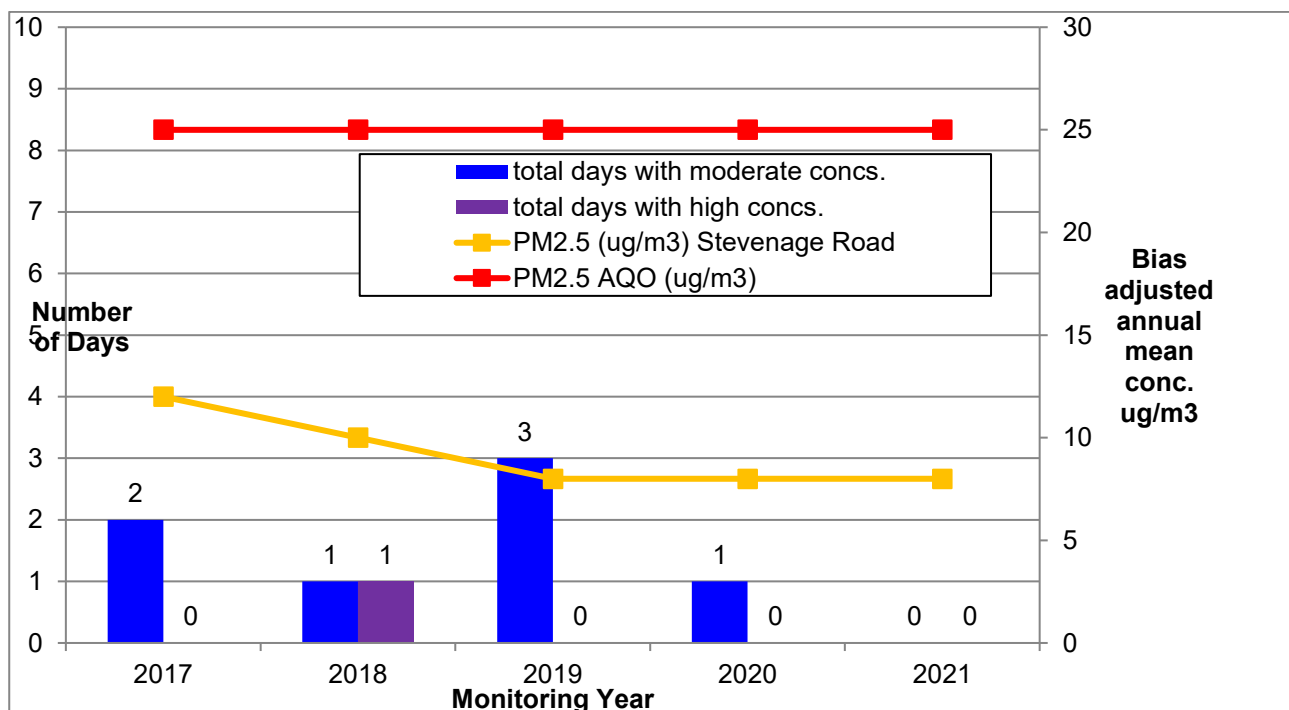


Figure 3.5: PM10 concentrations measured at Stevenage Road, Hitchin

2021 was the sixth full year of PM10 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/m³ 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 exceedences 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.

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

2021 was the sixth full year of PM2.5 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/m³. The number of days when moderate and high (as defined by the Defra Daily Air Quality Index) concentrations of PM2.5 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 PM2.5 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 |
| 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 |

| | | | | | | | | | | |
|---------------------------|----------------------------------------------|----------|--------|--------|-----|-------|------|------|-----|-----|
| NH107 | Whitehill Road, Hitchin | Roadside | 518720 | 228335 | NO2 | | 26.0 | 2.3 | | 2.5 |
| NH110, NH111, NH112 | Stevenage Road, AQ Analyser 3, Hitchin | Roadside | 518740 | 228348 | NO2 | AQMA1 | 11.0 | 2.0 | Yes | 2.0 |
| 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 | | | | | 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 |

| | | | | | | | | | | |
|-------|--------------------------------------------------|----------|--------|--------|-----|--|------|-----|--|-----|
| NH130 | Opp Old White Horse, Station Rd, Baldock | Roadside | 524597 | 234119 | NO2 | | 6.0 | 1.5 | | 2.5 |
| 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 |

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 NO₂ Monitoring Results: Automatic Monitoring (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 2021 (%) ⁽²⁾ | 2017 | 2018 | 2019 | 2020 | 2021 |
|---------|-------------------------|--------------------------|-----------|-------------------------------------------------------------|--------------------------------------------|------|------|------|------|------|
| NH1 | 518740 | 228348 | Roadside | 98 | 98 | 48 | 44 | 45 | 37 | 31 |

☒ Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG16

☒ 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/m³.

Exceedances of the NO₂ annual mean objective of 40µg/m³ are shown in **bold**.

All means have been “annualised” as per LAQM.TG16 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 NO₂ Monitoring Results: Non-Automatic Monitoring (µg/m³)

| Diffusion Tube ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) | Valid Data Capture 2021 (%) | NO2 Annual Mean Concentration (µg/m3) | | | | |
|-------------------|-------------------------|--------------------------|-----------|----------------------------------------------|-----------------------------|---------------------------------------|------|------|------|------|
| | | | | | | 2017 | 2018 | 2019 | 2020 | 2021 |
| NH06 | 535906 | 240794 | Roadside | 41.9 | 41.9 | 26.5 | 24.6 | 24.8 | 21.7 | 20.5 |
| NH45 | 518708 | 228347 | Roadside | 49.9 | 49.9 | 42.3 | 37.1 | 38.3 | 26.5 | 24.7 |
| NH59 | 524649 | 234061 | Roadside | 99.7 | 99.7 | 26.3 | 26.2 | 23.4 | 18.5 | 18.8 |
| NNH60 | 519916 | 230099 | Roadside | 84.7 | 84.7 | 29.4 | 28.0 | 24.5 | 17.6 | 21.6 |
| NH61 | 524428 | 233882 | Roadside | 75.1 | 75.1 | 27.7 | 27.2 | 26.8 | | 25.8 |
| NH63 | 518160 | 229092 | Roadside | 69.3 | 69.3 | 35.8 | 32.3 | 32.1 | 27.2 | 24.1 |
| NH67 | 519225 | 230553 | Roadside | 61.9 | 61.9 | 28.3 | 23.7 | 23.5 | 20.0 | 19.3 |
| NH127 | 518821 | 229993 | Roadside | 52.1 | 52.1 | | 21.9 | 21.0 | | 17.7 |
| NH72 | 524502 | 233948 | Roadside | 67.1 | 67.1 | 31.3 | 27.5 | 26.8 | 24.2 | 20.5 |
| NH103 | 518773 | 228342 | Roadside | 84.7 | 84.7 | 38.6 | 35.5 | 34.4 | 28.0 | 27.1 |
| NH77 | 518006 | 229032 | Roadside | 99.7 | 99.7 | 36.9 | 35.3 | 34.0 | 24.5 | 26.9 |
| NH82 | 518129 | 229065 | Roadside | 34.8 | 34.8 | 33.3 | 33.3 | 32.0 | | 21.7 |

| | | | | | | | | | | |
|-------|--------|--------|----------|------|------|-------------|-------------|-------------|------|------|
| NH87 | 518731 | 228362 | Roadside | 92.3 | 92.3 | 26.9 | 23.8 | 23.7 | 33.5 | 18.7 |
| NH88 | 524448 | 233898 | Kerbside | 17.5 | 17.5 | 40.5 | 34.7 | 35.7 | 32.3 | - |
| NH89 | 518706 | 228293 | Roadside | 90.1 | 90.1 | 28.2 | 22.8 | 23.6 | 19.4 | 18.2 |
| NH91 | 518656 | 228406 | Roadside | 92.1 | 92.1 | 32.2 | 27.4 | 29.8 | 26.7 | 21.8 |
| NH92 | 518872 | 228305 | Roadside | 84.7 | 84.7 | 44.4 | 38.8 | 36.7 | 31.7 | 32.7 |
| NH93 | 518130 | 229036 | Roadside | 17.5 | 17.5 | 45.5 | 46.1 | 41.9 | | - |
| NH94 | 517915 | 228967 | Roadside | 77.0 | 77.0 | 34.3 | 30.1 | 27.5 | 22.1 | 20.9 |
| NH95 | 517886 | 228975 | Roadside | 69.3 | 69.3 | 33.0 | 29.9 | 28.9 | 23.0 | 19.5 |
| NH98 | 519080 | 229510 | Roadside | 74.8 | 74.8 | 28.6 | 26.6 | 26.6 | 22.6 | 18.2 |
| NH99 | 518953 | 229786 | Roadside | 52.1 | 52.1 | 29.8 | 29.2 | 28.0 | 18.1 | 21.4 |
| NH108 | 518534 | 229302 | Roadside | 84.7 | 84.7 | 33.1 | 32.1 | 31.8 | 23.9 | 24.4 |
| NH104 | 518757 | 228334 | Roadside | 84.7 | 84.7 | 32.2 | 27.5 | 25.7 | 19.2 | 20.0 |
| NH105 | 519067 | 228255 | Roadside | 67.4 | 67.4 | 43.3 | 40.0 | 37.7 | 28.5 | 26.1 |
| NH106 | 519250 | 228218 | Roadside | 67.1 | 67.1 | 35.3 | 35.0 | 35.4 | 24.2 | 22.4 |
| NH107 | 518720 | 228335 | Roadside | 74.5 | 74.5 | 27.8 | 25.6 | 26.5 | 21.9 | 20.5 |

| | | | | | | | | | | |
|---------------------------|--------|--------|----------|------|------|-------------|-------------|-------------|------|------|
| NH110, NH111, NH112 | 518740 | 228348 | Roadside | 99.7 | 99.7 | 50.7 | 44.9 | 44.9 | 35.4 | 36.8 |
| NH114 | 518150 | 229160 | Roadside | 69.3 | 69.3 | 29.0 | 27.0 | 25.2 | 20.7 | 18.6 |
| NH115 | 535373 | 241466 | Roadside | 49.6 | 49.6 | 26.8 | 24.2 | 24.3 | 21.5 | 17.5 |
| NH116 | 518492 | 228669 | Roadside | 57.5 | 57.5 | 35.8 | 33.6 | 31.2 | 20.5 | 21.3 |
| NH117 | 518278 | 229752 | Roadside | 51.8 | 51.8 | 28.1 | 24.5 | 26.0 | 21.2 | 15.5 |
| NH119 | 521767 | 218110 | Roadside | 59.7 | 59.7 | 26.1 | 24.4 | 23.0 | 18.9 | 16.3 |
| NH120 | 539975 | 238521 | Roadside | 7.7 | 7.7 | | | | | - |
| NH121 | 523849 | 233497 | Roadside | 84.7 | 84.7 | | 23.8 | 20.9 | 16.6 | 18.5 |
| NH122 | 523917 | 233917 | Roadside | 17.5 | 17.5 | | 21.0 | 19.6 | | - |
| NH123 | 522289 | 232985 | Roadside | 42.5 | 42.5 | | 19.0 | 19.0 | | 18.8 |
| NH124 | 520967 | 233073 | Roadside | 99.7 | 99.7 | | 18.4 | 18.6 | 15.8 | 14.1 |
| NH125 | 512486 | 223251 | Rural | 74.8 | 74.8 | | 15.8 | 17.7 | 18.4 | 13.2 |
| NH128 | 521497 | 218415 | Roadside | 84.7 | 84.7 | | | 25.0 | 24.0 | 15.7 |
| NH129 | 525205 | 220142 | Roadside | 47.7 | 47.7 | | | 27.2 | | 18.1 |
| NH130 | 524597 | 234119 | Roadside | 67.4 | 67.4 | | | 30.7 | 25.7 | 26.2 |

| | | | | | | | | | | |
|-------|--------|--------|----------|------|------|--|--|------|------|------|
| NH131 | 518215 | 231528 | Kerbside | 82.5 | 82.5 | | | 38.0 | 28.9 | 29.1 |
| NH132 | 518283 | 231366 | Roadside | 82.5 | 82.5 | | | 18.7 | 16.9 | 17.3 |
| NH133 | 523124 | 227776 | Roadside | 84.4 | 84.4 | | | 18.2 | 17.0 | 13.1 |
| NH134 | 521516 | 227449 | Roadside | 84.4 | 84.4 | | | 18.6 | 13.5 | 12.5 |

☒ Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG16

☒ 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 $\mu\text{g}/\text{m}^3$.

Exceedances of the NO_2 annual mean objective of $40\mu\text{g}/\text{m}^3$ are shown in **bold**.

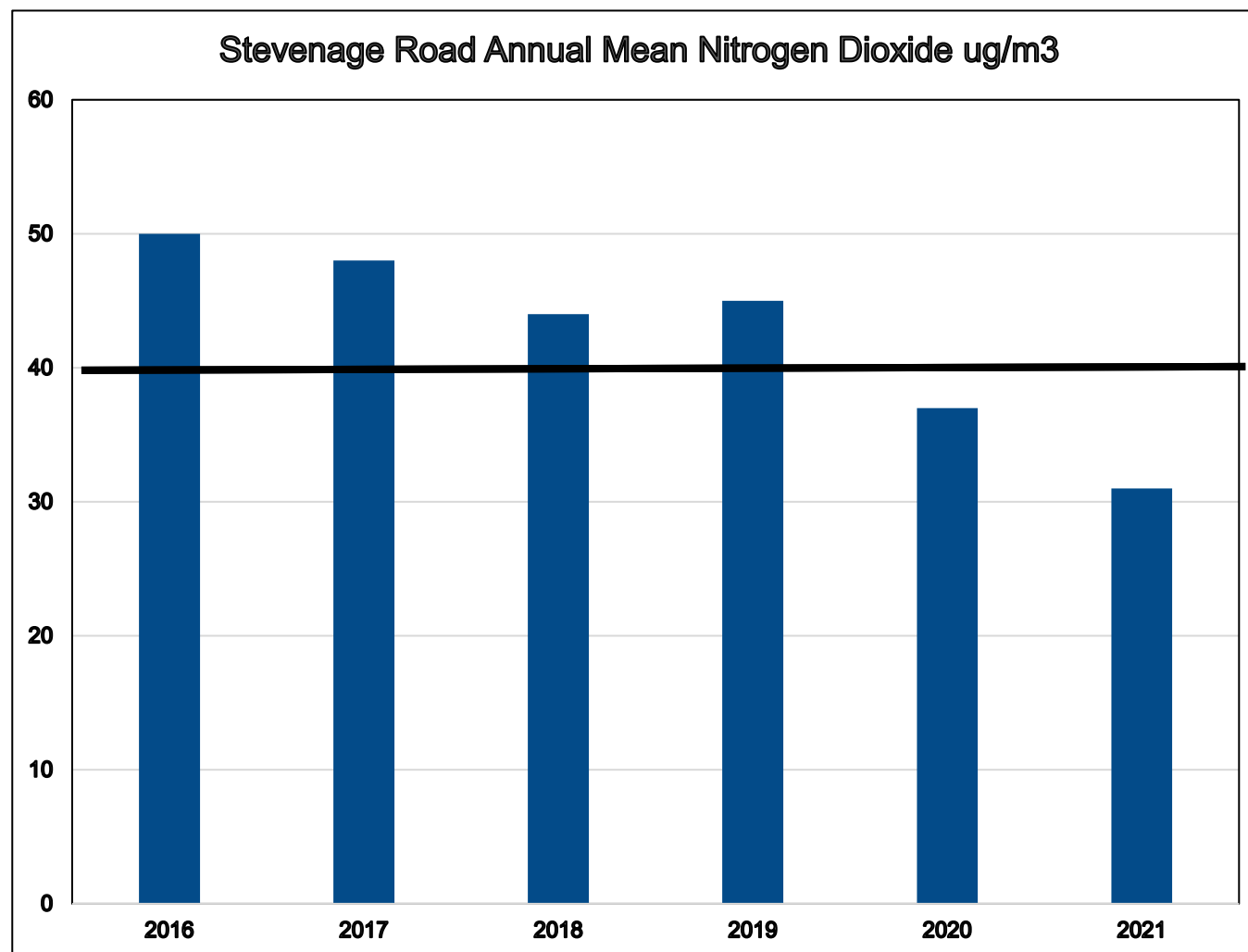
NO_2 annual means exceeding $60\mu\text{g}/\text{m}^3$, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined**.

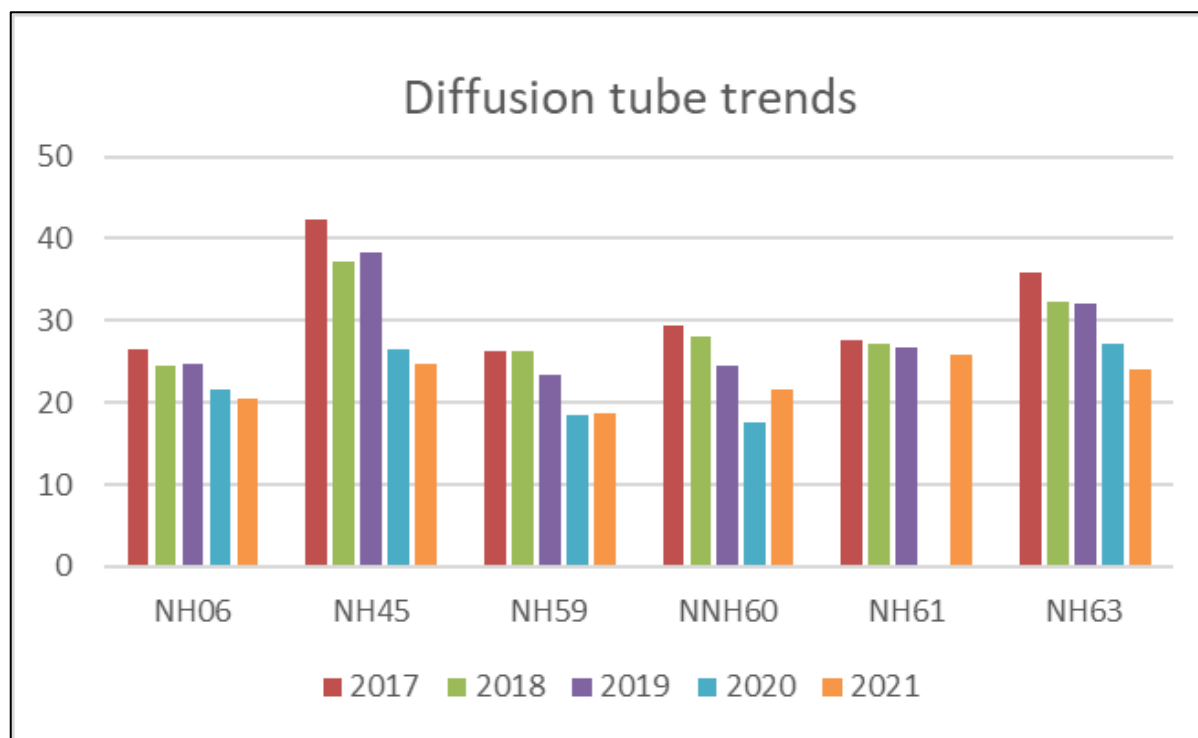
Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

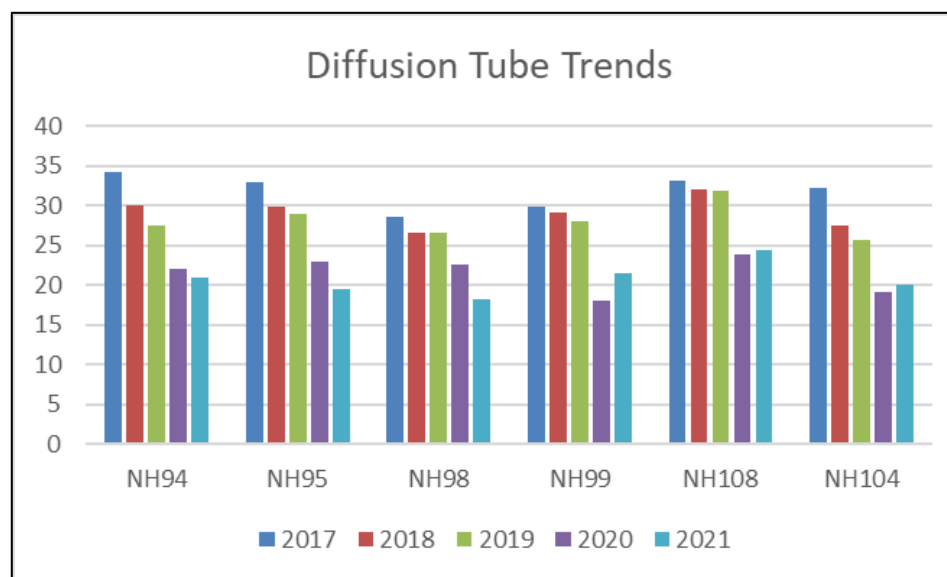
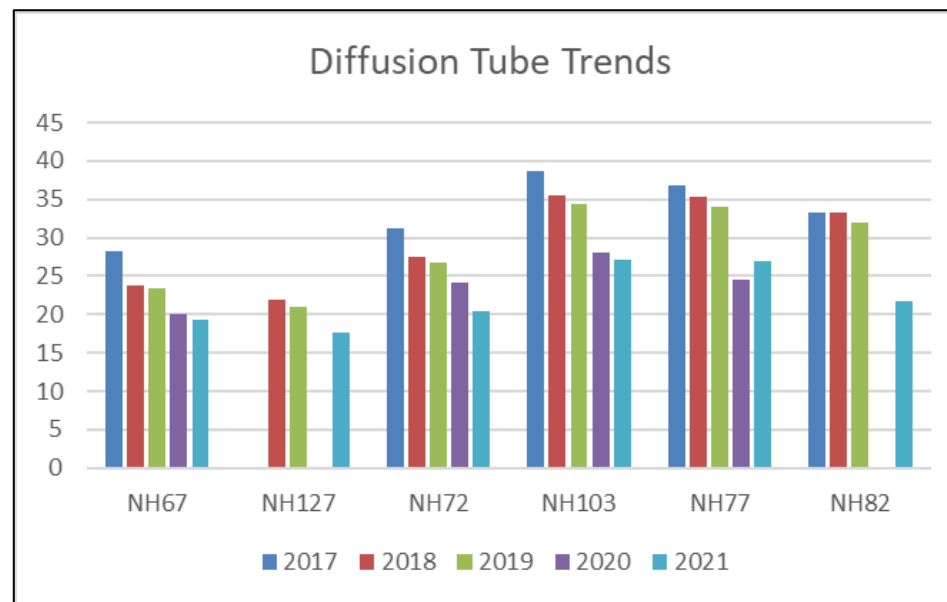
Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

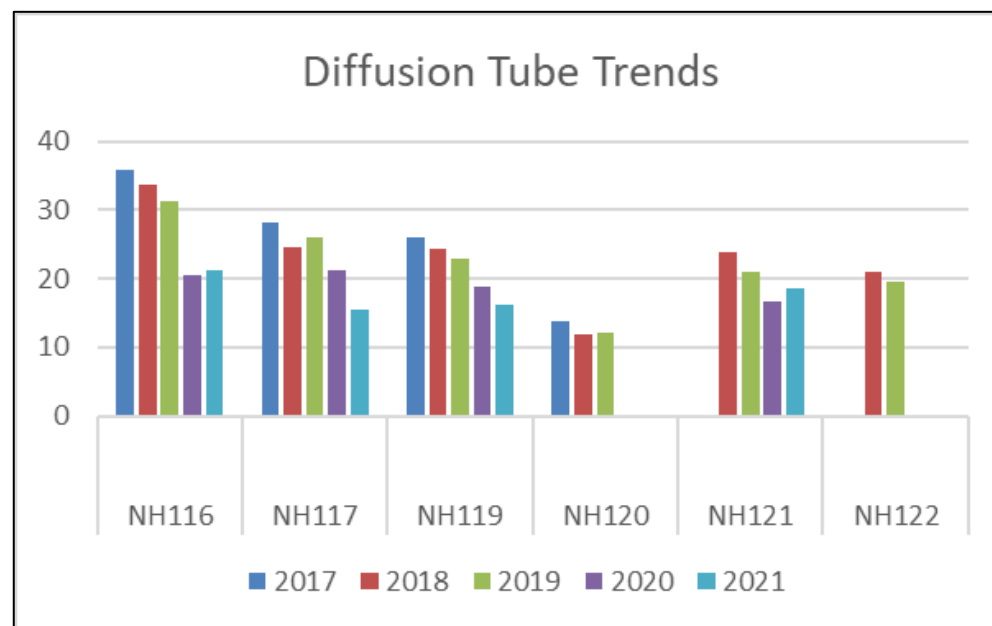
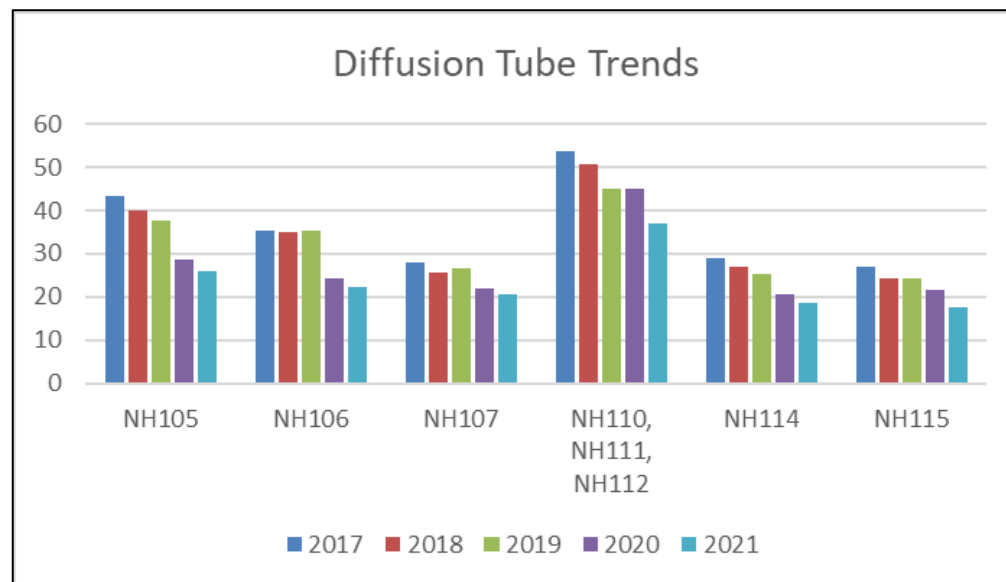
(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(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 NO₂ Concentrations







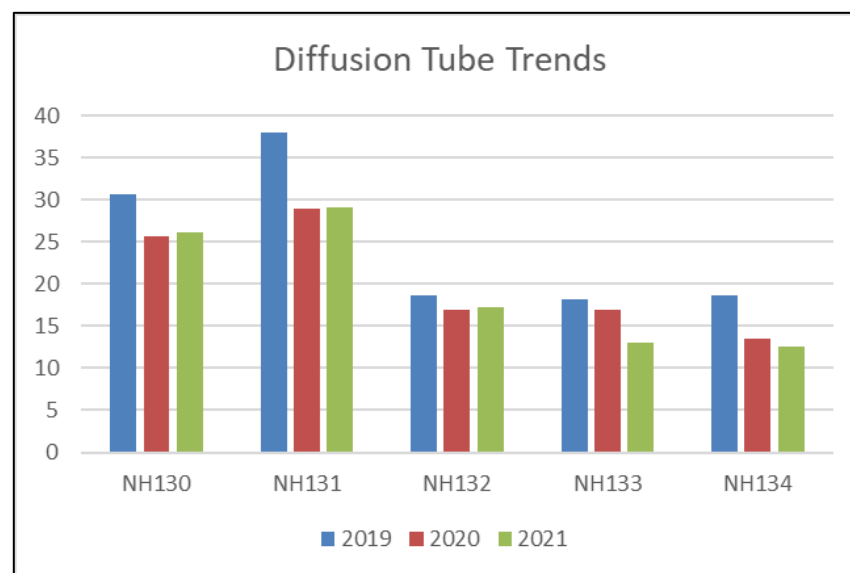
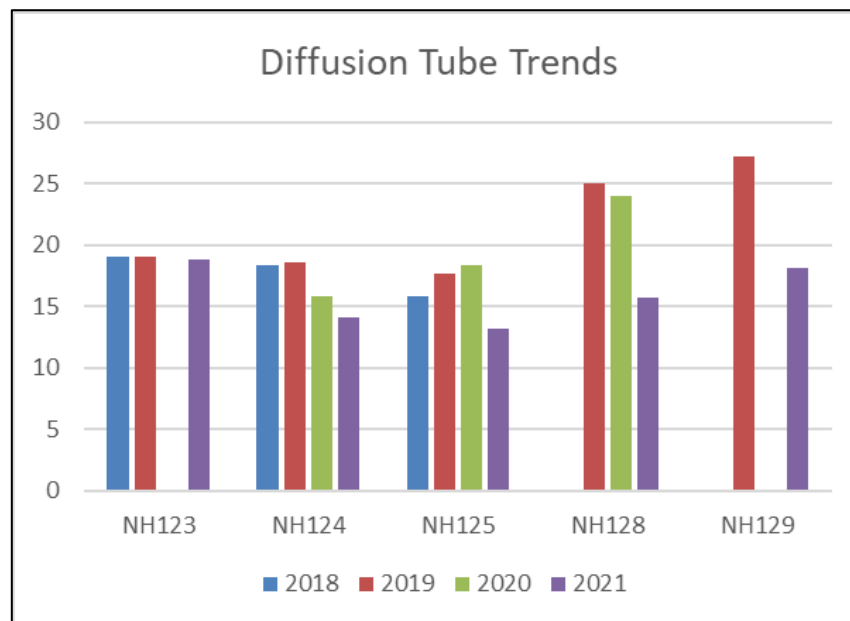


Table A.5 – 1-Hour Mean NO₂ Monitoring Results, Number of 1-Hour Means > 200µg/m³

| Site ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) ⁽¹⁾ | Valid Data Capture 2021 (%) ⁽²⁾ | 2017 | 2018 | 2019 | 2020 | 2021 |
|---------|-------------------------|--------------------------|-----------|-------------------------------------------------------------|--------------------------------------------|------|------|------|------|------|
| NH1 | 518740 | 228348 | Roadside | 98 | 98 | 4 | 0 | 0 | 0 | 0 |

Notes:

Results are presented as the number of 1-hour periods where concentrations greater than 200µg/m³ have been recorded. Exceedances of the NO₂ 1-hour mean objective (200µg/m³ 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%).

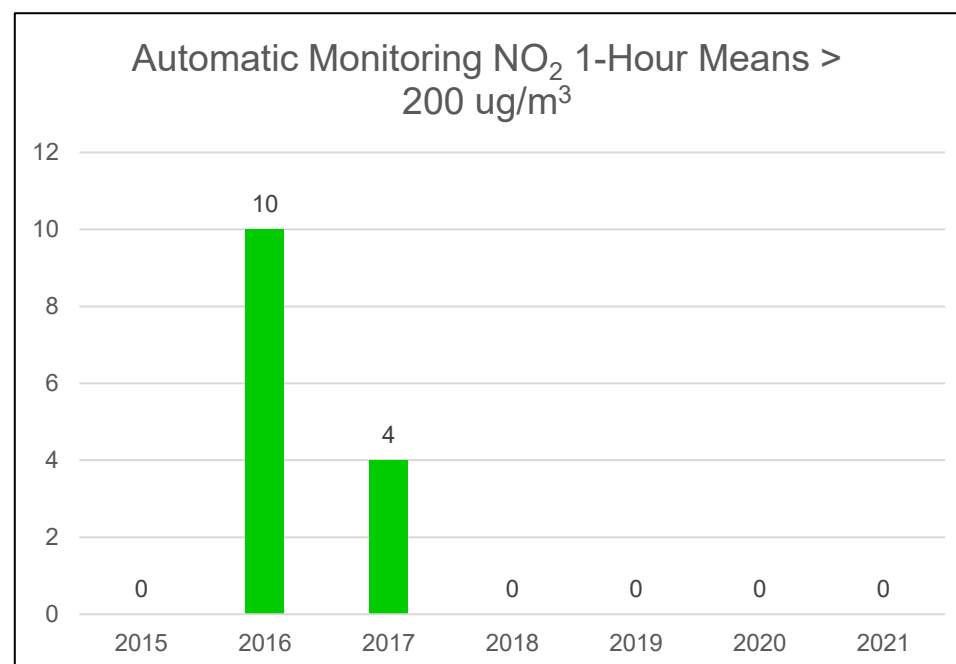
Figure A.2 – Trends in Number of NO₂ 1-Hour Means > 200µg/m³

Table A.6 – Annual Mean PM₁₀ 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 2021 (%) ⁽²⁾ | 2017 | 2018 | 2019 | 2020 | 2021 |
|---------|-------------------------|--------------------------|-----------|-------------------------------------------------------------|--------------------------------------------|------|------|------|------|------|
| NH2 | 518713 | 228349 | Roadside | 69 | 69 | 20.1 | 21.5 | 20.4 | 19.7 | 17 |

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG16**

Notes:

The annual mean concentrations are presented as µg/m³.

Exceedances of the PM₁₀ annual mean objective of 40µg/m³ are shown in **bold**.

All means have been “annualised” as per LAQM.TG16 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%).

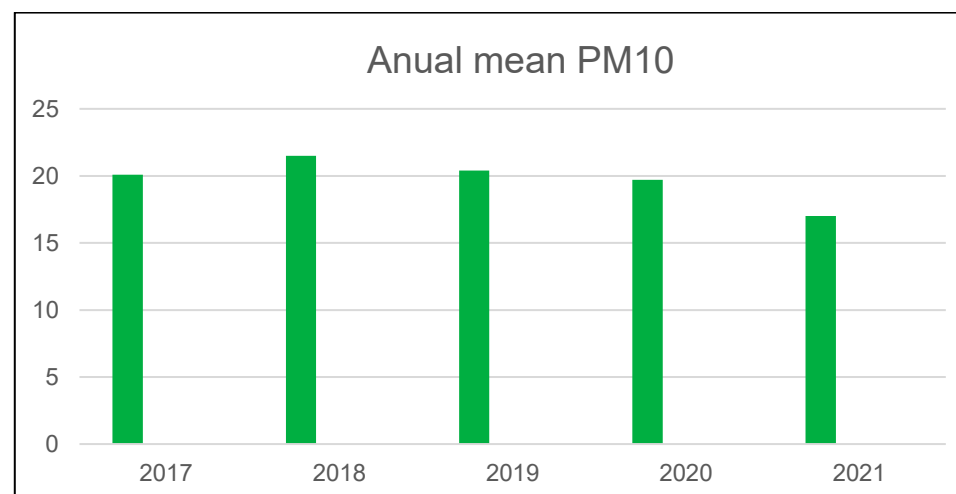
Figure A.3 – Trends in Annual Mean PM₁₀ Concentrations

Table A.7 – 24-Hour Mean PM₁₀ Monitoring Results, Number of PM₁₀ 24-Hour Means > 50µg/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 2021 (%) ⁽²⁾ | 2017 | 2018 | 2019 | 2020 | 2021 |
|---------|-------------------------|--------------------------|-----------|-------------------------------------------------------------|--------------------------------------------|------|------|------|------|------|
| NH2 | 518713 | 228349 | Roadside | 69 | 69 | 7 | 1 | 5 | 1 | 0 |

Notes:

Results are presented as the number of 24-hour periods where daily mean concentrations greater than 50µg/m³ have been recorded.

Exceedances of the PM₁₀ 24-hour mean objective (50µg/m³ 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%).

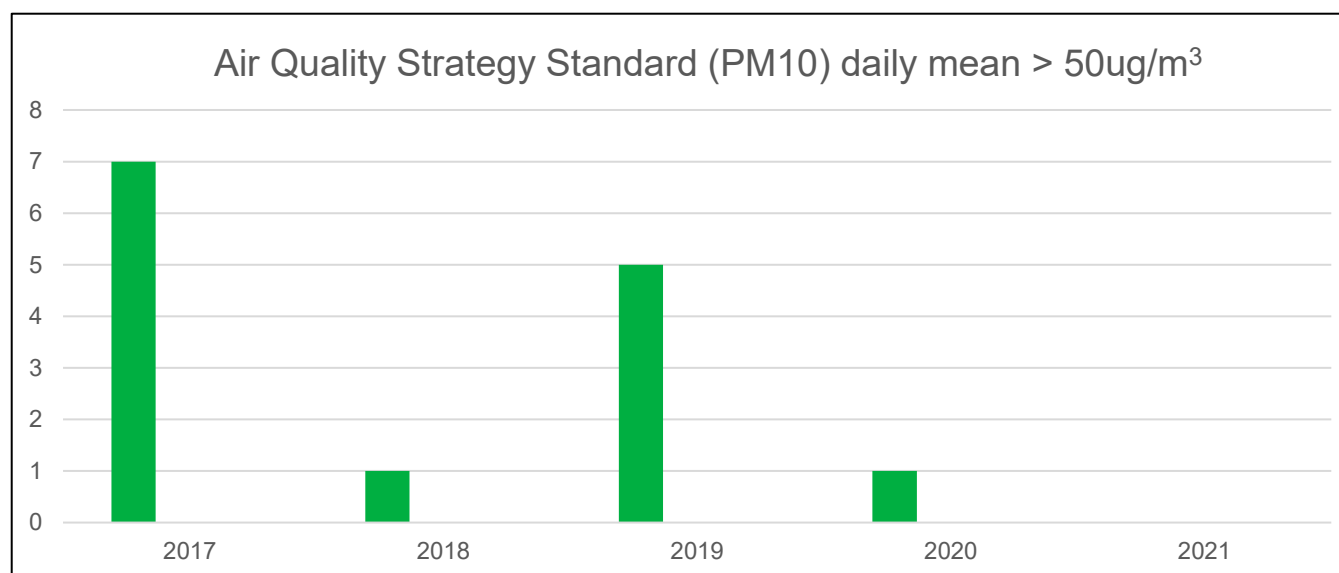
Figure A.4 – Trends in Number of 24-Hour Mean PM₁₀ Results > 50µg/m³

Table A.8 – Annual Mean PM_{2.5} 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 2021 (%) ⁽²⁾ | 2017 | 2018 | 2019 | 2020 | 2021 |
|---------|-------------------------|--------------------------|-----------|-------------------------------------------------------------|--------------------------------------------|------|------|------|------|------|
| NH2 | 518713 | 228349 | Roadside | 65 | 65 | 12.2 | 9.96 | 8.4 | 8.4 | 8 |

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG16**

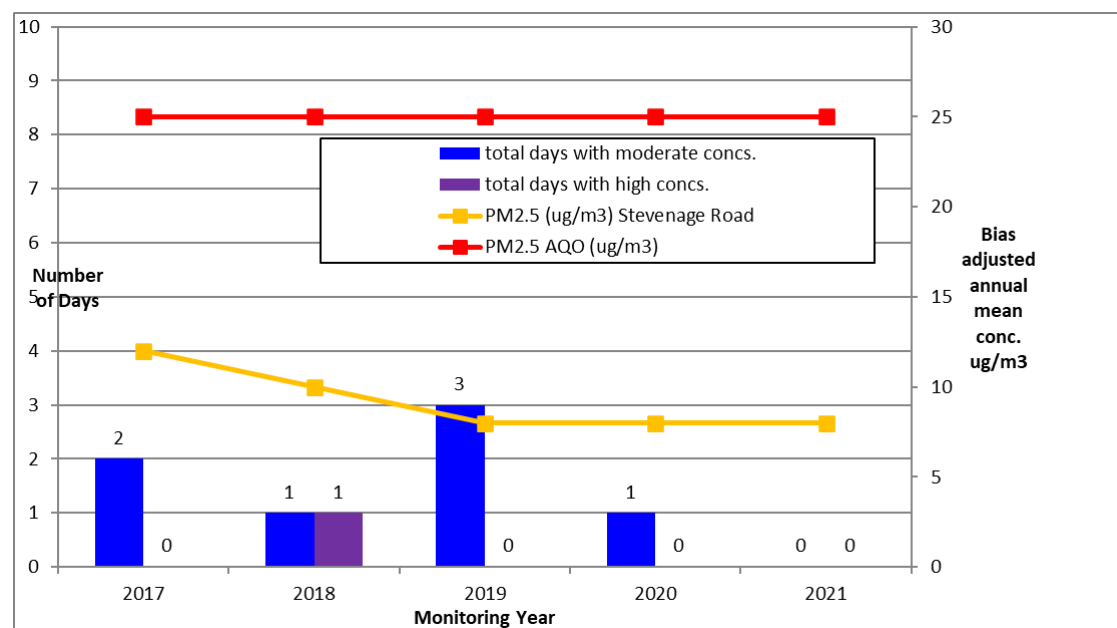
Notes:

The annual mean concentrations are presented as µg/m³.

All means have been “annualised” as per LAQM.TG16 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 PM_{2.5} Concentrations

Appendix B: Full Monthly Diffusion Tube Results for 2021

Table B.1 – NO₂ 2021 Diffusion Tube Results (µg/m³)

| DTD | XOS Grid Ref (Eastin g) | YOS Grid Ref (Northin g) | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual Mean: Raw Data | Annual Mean: Annualised and Bias Adjusted (x) | Annual Mean: Distance Corrected to Nearest Exposure | Comment |
|-------|-------------------------|--------------------------|------|------|-----|------|------|------|------|------|------|------|------|------|-----------------------|-----------------------------------------------|-----------------------------------------------------|-----------------------------------------------------------------------------------|
| NH06 | 535906 | 240794 | 28.9 | | | 25.5 | 23.3 | | 26.7 | | | | 35.7 | | 27.9 | 20.5 | - | |
| NH45 | 518708 | 228347 | 40.4 | 38.9 | | | | | 31.1 | | | | 35.1 | 42.7 | 37.8 | 24.7 | - | |
| NH59 | 524649 | 234061 | 26.8 | 25.9 | | 24.1 | 21.9 | 23.5 | 18.2 | 18.8 | 27.1 | 22.0 | 29.9 | 26.6 | 24.1 | 18.8 | - | |
| NH60 | 519916 | 230099 | 32.3 | 27.0 | | 30.0 | 24.9 | 27.7 | 22.4 | | | 23.7 | 34.6 | 28.9 | 27.7 | 21.6 | - | |
| NH61 | 524428 | 233882 | 49.6 | 35.5 | | 28.9 | 31.8 | 27.3 | | 20.3 | | 40.4 | | 39.6 | 34.4 | 25.8 | - | |
| NH63 | 518160 | 229092 | 35.1 | | | 28.3 | 29.1 | 30.5 | 24.3 | | | 36.9 | 39.0 | 38.5 | 32.7 | 24.1 | - | |
| NH67 | 519225 | 230553 | | | | 21.1 | 23.7 | 22.7 | 19.8 | | | 26.6 | 31.6 | 28.8 | 24.8 | 19.3 | - | |
| NH127 | 518821 | 229993 | | | | | 24.4 | 15.2 | 20.9 | | | 22.7 | 23.3 | 31.1 | 23.2 | 17.7 | - | |
| NH72 | 524502 | 233948 | 32.5 | | | 22.6 | 21.8 | 21.0 | | | 39.2 | 32.9 | 32.0 | 31.2 | 29.1 | 20.5 | - | |
| NH103 | 518773 | 228342 | 39.4 | 39.3 | | 29.3 | 34.6 | | 31.5 | 28.7 | | 34.9 | 30.1 | 40.5 | 34.7 | 27.1 | - | |
| NH77 | 518006 | 229032 | 42.1 | 29.5 | | 35.7 | 34.3 | 26.8 | 21.8 | 26.0 | 42.9 | 39.5 | 42.7 | 42.7 | 34.5 | 26.9 | - | |
| NH82 | 518129 | 229065 | | | | | 33.5 | | | | | 30.2 | 32.1 | 35.1 | 32.7 | 21.7 | - | |
| NH87 | 518731 | 228362 | 30.9 | 24.4 | | 19.2 | | 22.6 | 18.3 | 16.3 | 27.5 | 25.2 | 28.8 | 27.6 | 24.0 | 18.7 | - | |
| NH88 | 524448 | 233898 | | | | | | | | | | | 36.7 | 25.7 | - | - | - | |
| NH89 | 518706 | 228293 | 31.6 | 24.3 | | 17.8 | 19.7 | 19.8 | | 16.5 | 24.6 | 20.4 | 31.3 | 27.7 | 23.3 | 18.2 | - | |
| NH91 | 518656 | 228406 | 25.2 | 29.4 | | 19.1 | 26.9 | | 21.5 | 23.0 | 33.0 | 34.0 | 34.9 | 31.8 | 27.9 | 21.8 | - | |
| NH92 | 518872 | 228305 | 46.6 | 48.4 | | 39.6 | 41.1 | 33.8 | 26.8 | | | 44.2 | 47.5 | 46.2 | 42.0 | 32.7 | - | |
| NH93 | 518130 | 229036 | | | | | | | | | | | 41.9 | 38.3 | - | - | - | |
| NH94 | 517915 | 228967 | 31.4 | | | 24.4 | | 2.9 | 26.2 | 23.9 | 34.3 | 30.0 | 36.4 | 30.6 | 26.8 | 20.9 | - | |
| NH95 | 517886 | 228975 | 30.2 | | | 27.7 | 25.9 | 21.9 | 24.9 | | | 29.3 | 15.6 | 32.9 | 26.4 | 19.5 | - | |
| NH98 | 519080 | 229510 | 33.7 | 28.1 | | 20.9 | 23.7 | 16.5 | 15.5 | | | | 29.4 | 31.0 | 25.0 | 18.2 | - | |
| NH99 | 518953 | 229786 | | | | | 25.9 | 24.4 | 21.2 | | | 28.1 | 35.1 | 33.8 | 28.1 | 21.4 | - | |
| NH108 | 518534 | 229302 | 38.2 | 29.8 | | 27.7 | 29.8 | 24.7 | 27.0 | | | 34.7 | 37.0 | 34.1 | 31.2 | 24.4 | - | |
| NH104 | 518757 | 228334 | 34.5 | 26.8 | | 24.4 | | | 14.7 | 19.4 | 28.4 | 22.7 | 34.2 | 28.1 | 25.6 | 20.0 | - | |
| NH105 | 519067 | 228255 | 40.8 | 42.5 | | 32.3 | 30.8 | | | | | 39.0 | 41.5 | 44.1 | 39.1 | 26.1 | - | |
| NH106 | 519250 | 228218 | 38.6 | 35.0 | | | 32.4 | | 18.5 | | | 34.6 | 37.0 | 35.5 | 33.0 | 22.4 | - | |
| NH107 | 518720 | 228335 | 33.1 | | | | 23.8 | 19.8 | 25.9 | 18.7 | 29.8 | 24.8 | 29.4 | 30.8 | 26.3 | 20.5 | - | |
| NH110 | 518740 | 228348 | 58.7 | 50.2 | | 37.1 | | | 41.2 | 44.9 | 52.3 | 34.2 | 59.3 | 51.9 | - | - | - | Triplicate Site with NH110, NH111 and NH112 - Annual data provided for NH112 only |
| NH111 | 518740 | 228348 | 53.3 | 51.9 | | 42.6 | 40.5 | | 41.7 | 42.0 | 60.7 | 39.5 | 54.5 | 52.2 | - | - | - | Triplicate Site with NH110, NH111 and NH112 - Annual data provided for NH112 only |
| NH112 | 518740 | 228348 | 57.9 | 41.8 | | 42.3 | 43.7 | 46.9 | 48.3 | 44.4 | 57.1 | 34.3 | 58.9 | 51.3 | 47.2 | 36.8 | 25.5 | Triplicate Site with NH110, NH111 and NH112 - Annual data provided for NH112 only |
| NH114 | 518150 | 229160 | 27.8 | | | 19.5 | 24.5 | 22.1 | 20.0 | | | 28.2 | 32.1 | 28.8 | 25.2 | 18.6 | - | |
| NH115 | 535373 | 241466 | 26.4 | | | | | 20.3 | 20.1 | | 30.0 | | 34.8 | 20.6 | 24.9 | 17.5 | - | |
| NH116 | 518492 | 228669 | 30.7 | 33.9 | | 32.0 | 29.2 | | | | | | 35.2 | 31.4 | 32.3 | 21.3 | - | |
| NH117 | 518278 | 229752 | 26.2 | | | 12.5 | 20.2 | | 16.0 | | | | 29.6 | 29.1 | 21.9 | 15.5 | - | |
| NH119 | 521767 | 218110 | 30.7 | | | 18.9 | 20.4 | 20.5 | | | | 19.9 | 25.9 | 27.1 | 23.2 | 16.3 | - | |
| NH120 | 539975 | 238521 | | | | | | | | | | | 20.1 | | - | - | - | |
| NH121 | 523849 | 233497 | 26.2 | 25.7 | | 24.7 | 20.3 | 12.4 | 18.7 | 15.9 | | 20.4 | | 43.4 | 23.7 | 18.5 | - | |
| NH122 | 523917 | 233917 | | | | | | | | | | | 28.9 | 25.6 | - | - | - | |
| NH123 | 522289 | 232985 | | | | | 22.4 | 25.8 | | | | 26.5 | 28.2 | 27.6 | 26.2 | 18.8 | - | |
| NH124 | 520967 | 233073 | 25.1 | 22.3 | | 15.8 | 13.9 | 17.7 | 11.7 | 10.4 | 17.0 | 12.1 | 26.1 | 24.4 | 18.1 | 14.1 | - | |
| NH125 | 512486 | 223251 | 26.4 | 18.2 | | | | | 9.7 | 11.3 | 18.5 | 23.2 | 22.7 | 21.4 | 18.8 | 13.2 | - | |

| DTID | XOS Grid Ref (Eastin g) | YOS Grid Ref (Northin g) | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual Mean: Raw Data | Annual Mean: Annualised and Bias Adjusted (xx) | Annual Mean: Distance Corrected to Nearest Exposure | Comment |
|-------|-------------------------------------|-----------------------------------|------|------|-----|------|------|------|------|------|------|------|------|------|--------------------------|---------------------------------------------------------|-----------------------------------------------------------------|---------|
| NH128 | 521497 | 218415 | 25.1 | 19.3 | | 14.1 | | 17.1 | 16.8 | | 24.1 | 20.5 | 20.9 | 25.5 | 20.1 | 15.7 | - | |
| NH129 | 525205 | 220142 | 29.7 | 26.7 | | | | 21.9 | 21.5 | | | | 27.2 | | 25.4 | 18.1 | - | |
| NH130 | 524597 | 234119 | 43.6 | 39.7 | | 39.0 | | | | | 44.7 | 35.3 | 45.0 | 36.9 | 40.1 | 26.2 | - | |
| NH131 | 518215 | 231528 | 42.7 | 40.0 | | 15.3 | 34.9 | | | 29.8 | 45.6 | 41.8 | 43.5 | 42.9 | 37.3 | 29.1 | - | |
| NH132 | 518283 | 231366 | 24.0 | 18.9 | | 39.4 | 16.9 | | | 14.8 | 20.4 | 20.0 | 22.4 | 21.8 | 22.2 | 17.3 | - | |
| NH133 | 523124 | 227776 | 25.8 | | | 10.6 | 14.5 | 14.3 | 11.8 | 13.5 | 17.3 | 18.2 | 22.6 | 20.5 | 16.7 | 13.1 | - | |
| NH134 | 521516 | 227449 | 20.3 | | | 15.1 | 13.8 | 12.6 | 11.1 | 11.1 | 21.8 | 15.5 | 18.6 | 20.9 | 16.0 | 12.5 | - | |

☒ All erroneous data has been removed from the NO₂ diffusion tube dataset presented in Table B.1

☒ Annualisation has been conducted where data capture is <75% and >25% in line with LAQMTG16

☒ National bias adjustment factor used

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

☒ North Hertfordshire Council confirm that all 2021 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System

Notes:

Exceedances of the NO₂ annual mean objective of 40µg/m³ are shown in **bold**.

NO₂ annual means exceeding 60µg/m³, indicating a potential exceedance of the NO₂ 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 2021

North Hertfordshire Council has not identified any new sources relating to air quality within the reporting year of 2021.

Additional Air Quality Works Undertaken by North Hertfordshire Council During 2021

North Hertfordshire Council has not completed any additional works within the reporting year of 2021.

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 March 2019 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 2021 was.

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 2021, 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; NH45; NH63; NH67; NH127; NH72; NH82; **NH88**; NH92; **NH93**; NH95; NH98; NH99; NH105; NH106; NH107; NH114; NH115; NH116; NH117; NH119; **NH120**; **NH122**; NH123; NH125; NH129; NH130

In addition, any sites **(in bold red)** with a data capture below 25% do not require annualisation.

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2021 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.TG16 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/NO₂ 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 0.78 to the 2021 monitoring data. A summary of bias adjustment factors used by North Hertfordshire Council over the past five years is presented in Table C.1.

Table C.1 – Bias Adjustment Factor

| Monitoring Year | Local or National | If National, Version of National Spreadsheet | Adjustment Factor |
|-----------------|-------------------|----------------------------------------------|-------------------|
| 2021 | National | 09/20 | 0.78 |
| 2020 | National | 03/21 | 0.76 |
| 2019 | National | 03/20 | 0.75 |
| 2018 | National | 03/19 | 0.76 |
| 2017 | National | 03/17 | 1.03 |

NO₂ Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO₂ concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/NO₂ fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO₂ concentrations corrected for distance are presented in Table B.1.

| Diffusion Tube ID | Distance (m) | | NO ₂ Annual Mean Concentration (µg/m ³) | | |
|---------------------------|-------------------------|------------------|----------------------------------------------------------------|------------|-----------------------|
| | Monitoring Site to Kerb | Receptor to Kerb | Bias Adjusted and Annualised | Background | Predicted at Receptor |
| NH110, NH111, NH112 | 2.0 | 13.0 | 36.8 | 10.9 | 25.5 |

QA/QC of Automatic Monitoring

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.

PM₁₀ 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

Both the PM 10 and PM_{2.5} automatic data capture were below the 75% level, and the annualisation data is presented in Table C.2.

NO₂ Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO₂ concentration at the nearest location relevant for exposure has been estimated using the NO₂ fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO₂ concentrations corrected for distance are presented in Table B.1.

No automatic NO₂ monitoring locations within North Hertfordshire required distance correction during 2021.

Table C.2 – Annualisation Summary (concentrations presented in $\mu\text{g}/\text{m}^3$)

| Site ID | Annualisation Factor Luton Airport | Annualisation Factor Future Luton | Annualisation Factor Northampton Spring Park | Annualisation Factor Site 4 Name | Average Annualisation Factor | Raw Data Annual Mean | Annualised Annual Mean | Comments |
|-----------|------------------------------------|-----------------------------------|----------------------------------------------|----------------------------------|------------------------------|----------------------|------------------------|--------------------------------------|
| NH2 PM10 | 0.954 | 1.011 | | | 0.982 | 17.155 | 16.85 | Annualised results for Hitchin PM10 |
| NH2 PM2.5 | | 1.007 | 0.991 | | 0.999 | 8.552 | 8.54 | Annualised results for Hitchin PM2.5 |

Table C.3 – NO₂ Fall off With Distance Calculations (concentrations presented in µg/m³)

| 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 | 36.8 | 10.9 | 25.5 | |

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

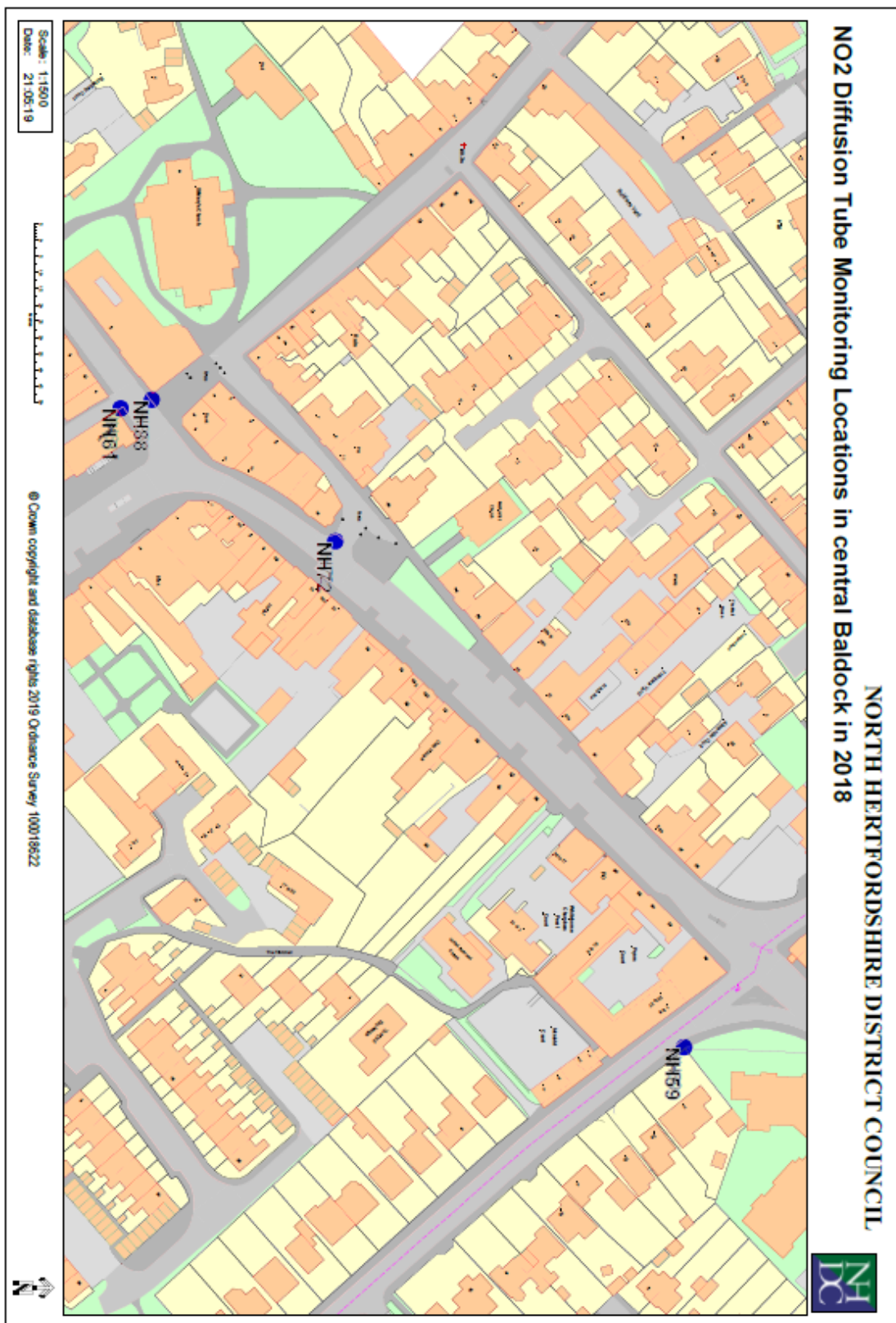


Figure D.1 Diffusion Tube Monitoring Locations (NH72, NH88, NH59 & NH61) in central Baldock - 2021

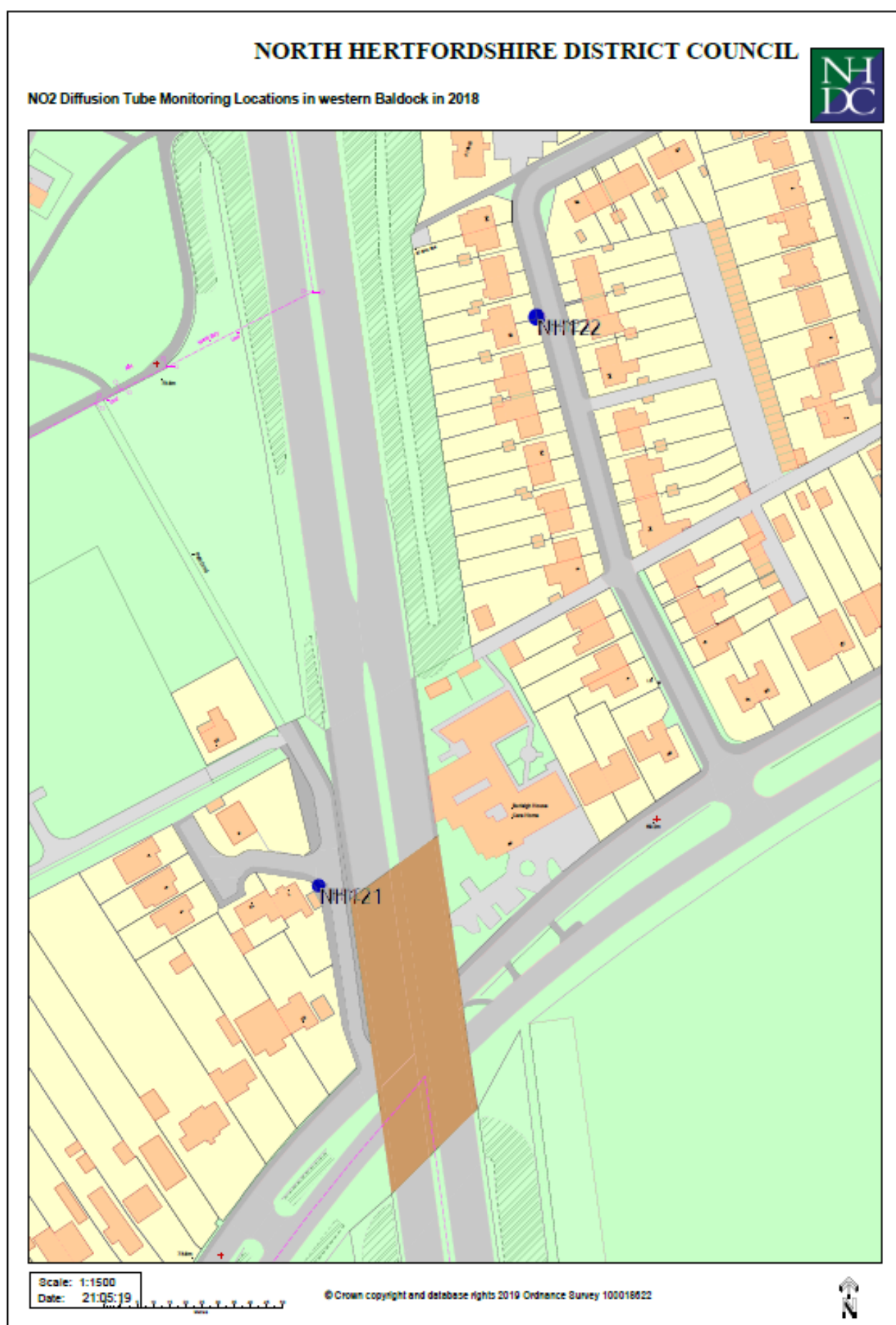


Figure D2: Diffusion Tube Monitoring Locations (NH121 & NH122) in western Baldock - 2018

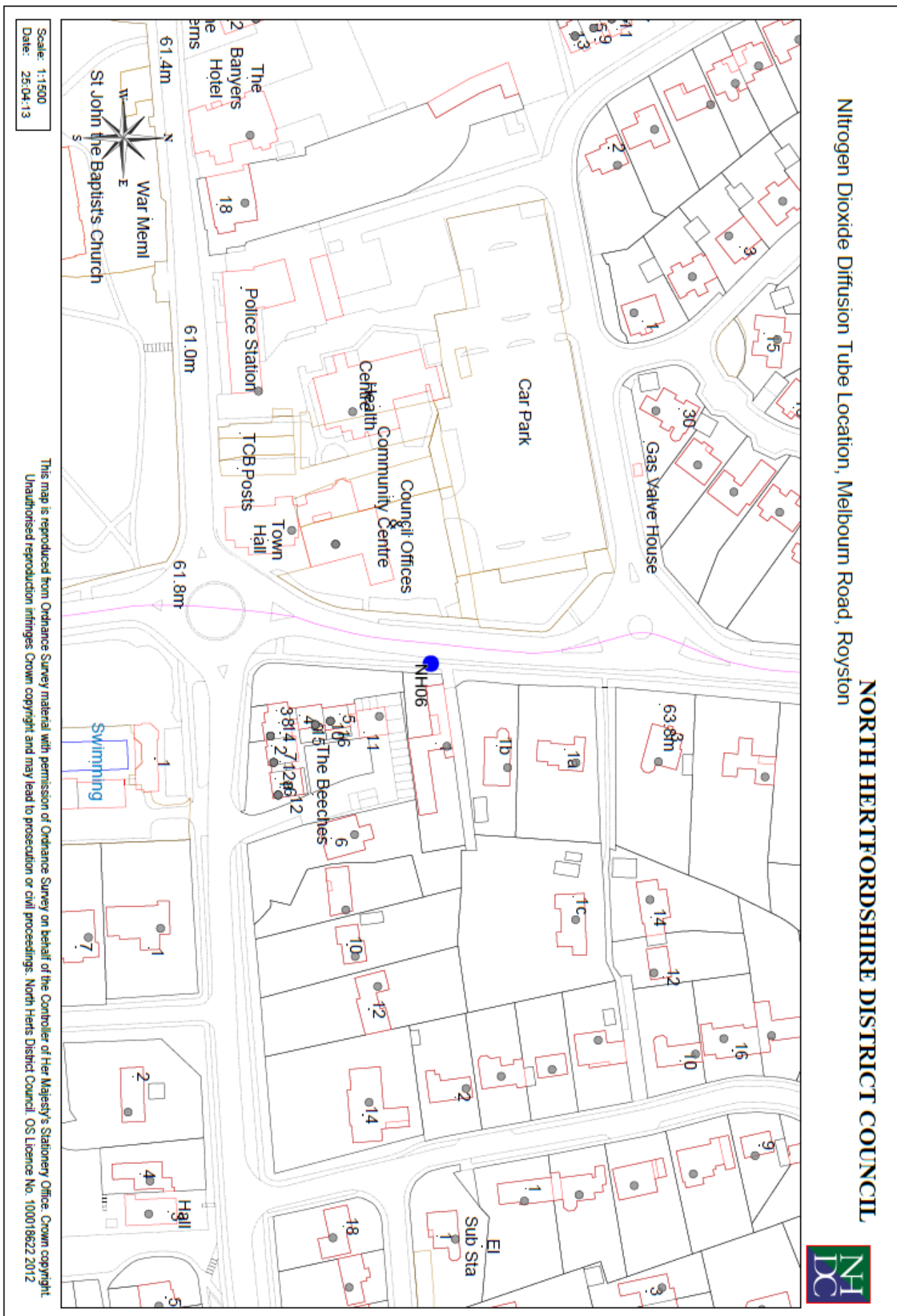


Figure D3: Diffusion Tube Monitoring Location (NH06) at Melbourn Road, Royston - 2021

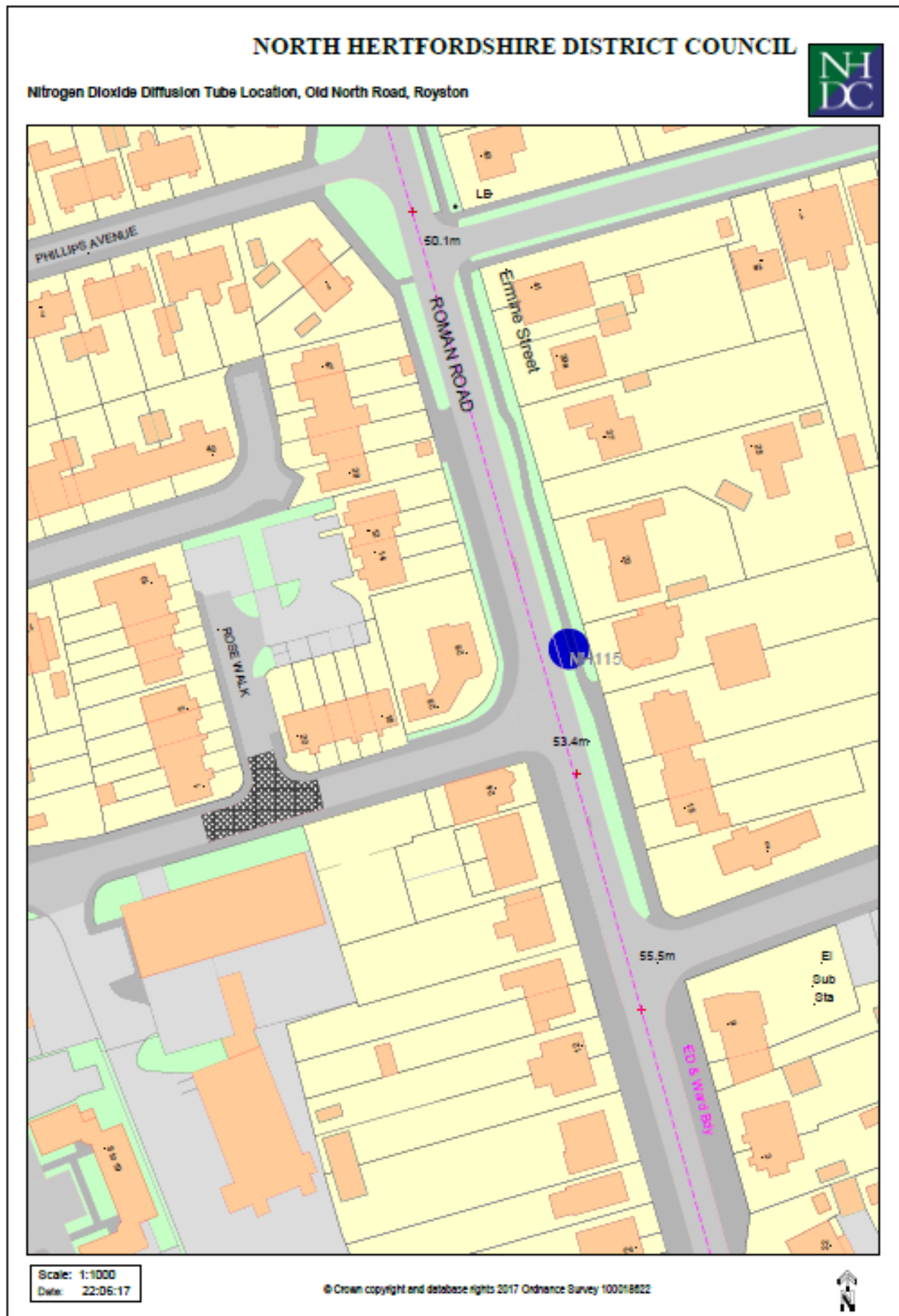


Figure D4: Diffusion Tube (NH115) Monitoring Location at Old North Road, Royston - 2021

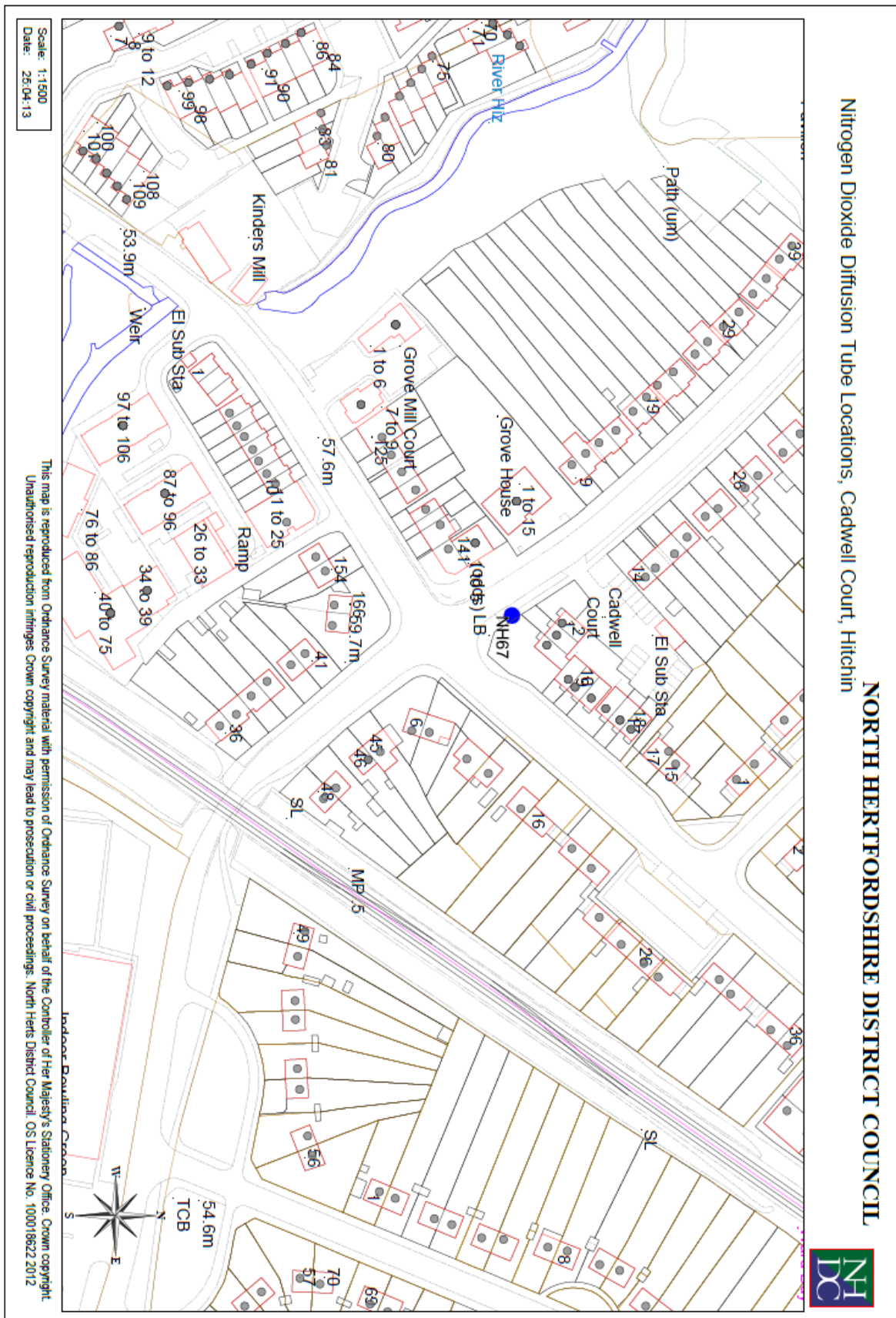


Figure D5: Diffusion Tube (NH67) Monitoring Location at Cadwell Court, Hitchin - 2021



Figure D6: Diffusion Tube (NH127) Monitoring Location at Grove Road, Hitchin - 2021



Figure D7: Diffusion Tube Monitoring Locations (NH99 & NH98) in the Nightingale Road Area of Hitchin – 2021

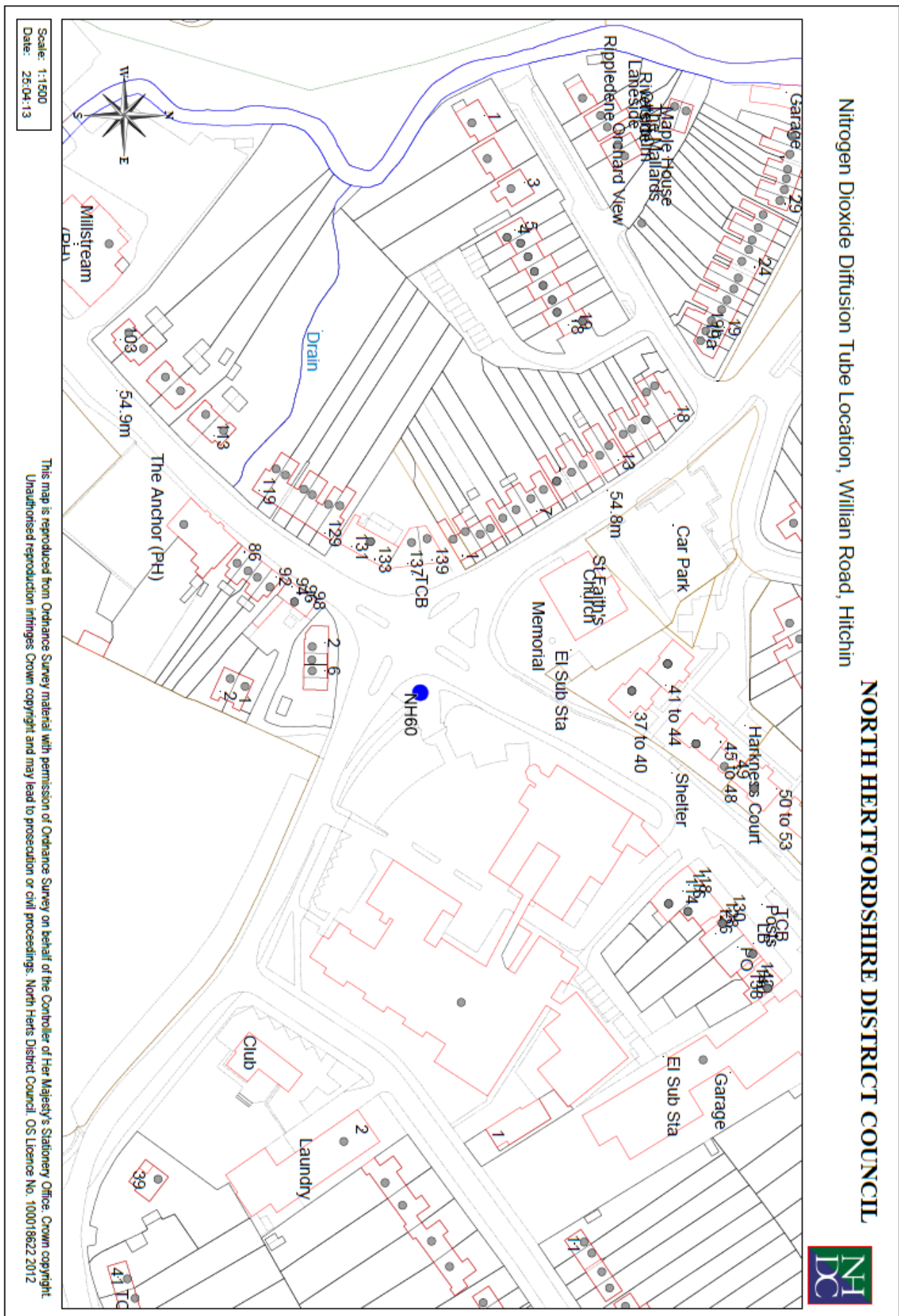


Figure D8: Diffusion Tube Monitoring Location (NH60) at Willian Road, Hitchin - 2021

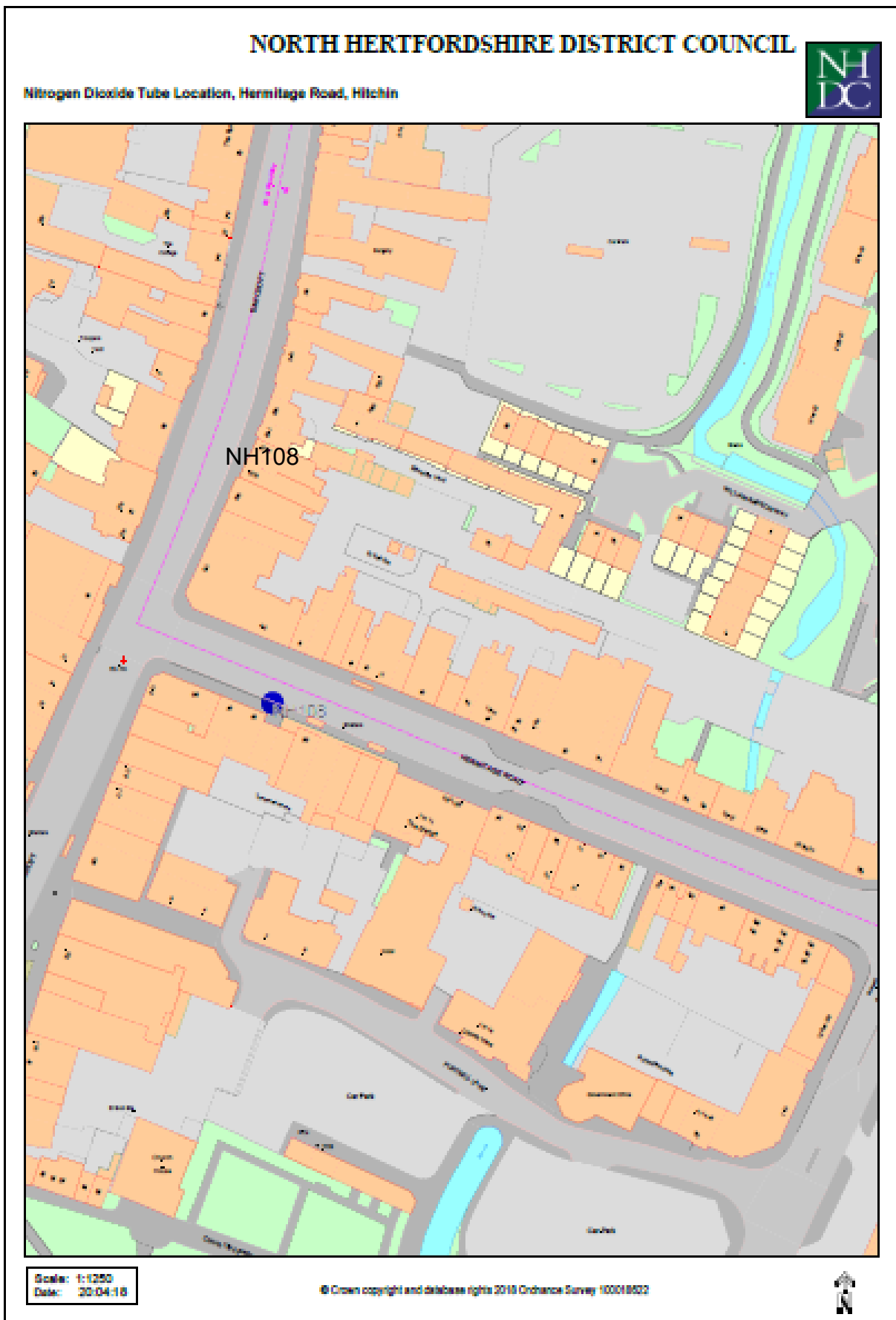


Figure D9: Diffusion Tube Monitoring Location (NH108) at Hermitage Road, Hitchin – 2021

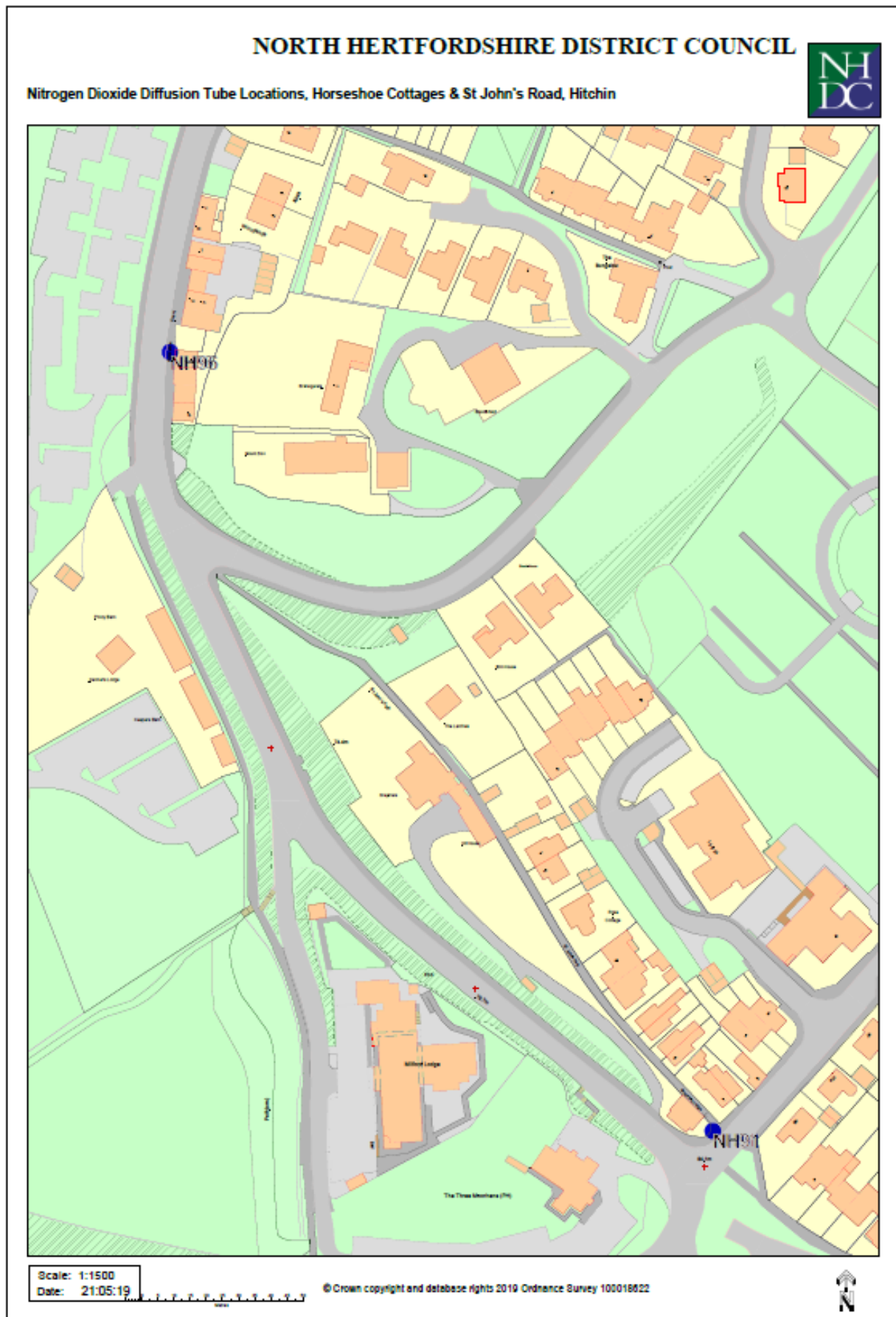


Figure D10: Diffusion Tube Monitoring Locations (NH116) at 6 Horseshoe Court, Park Street and (NH91) at St John's Road, Hitchin - 2021

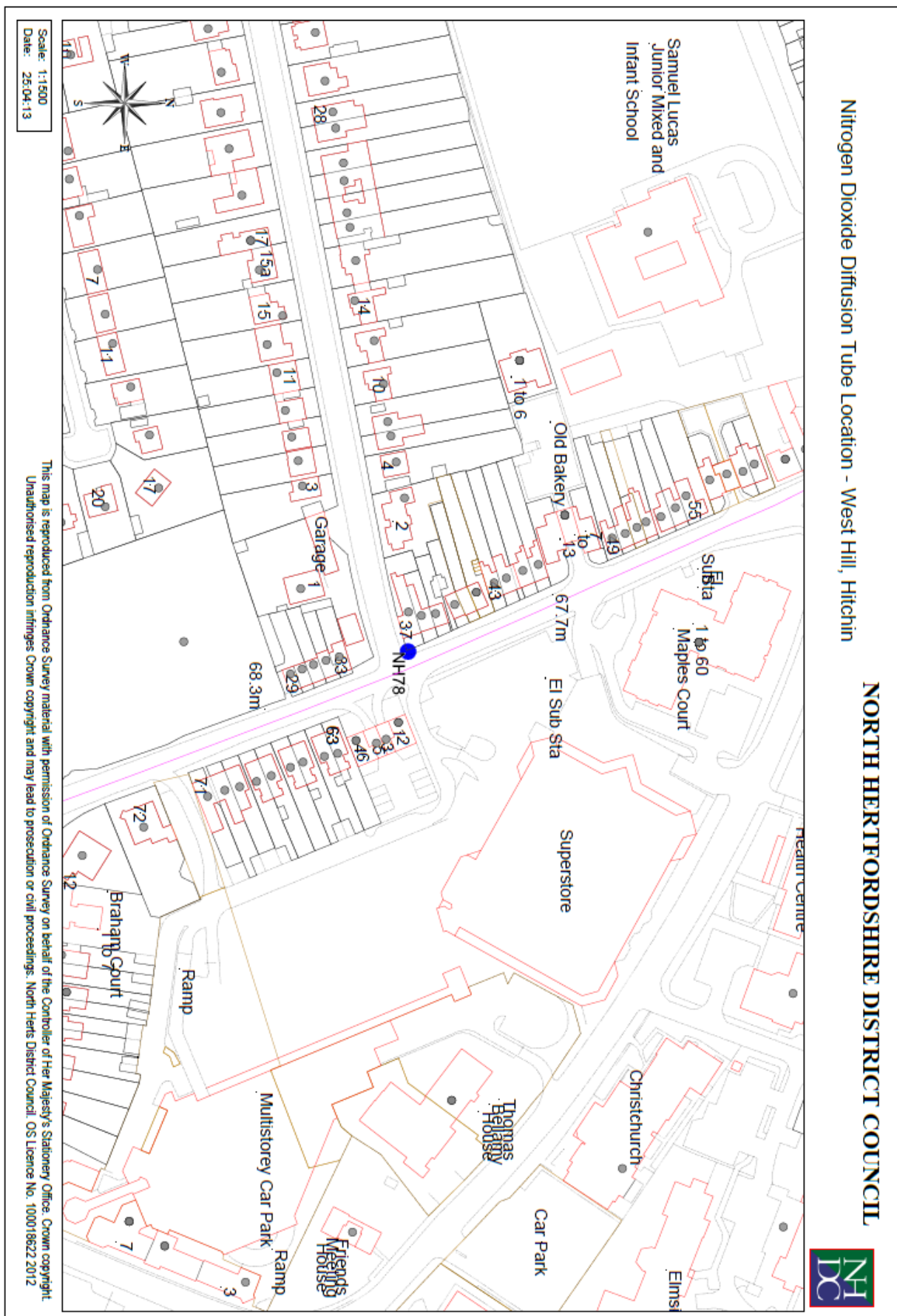


Figure D11: Diffusion Tube Monitoring Location (NH78) at West Hill Hitchin – 2021

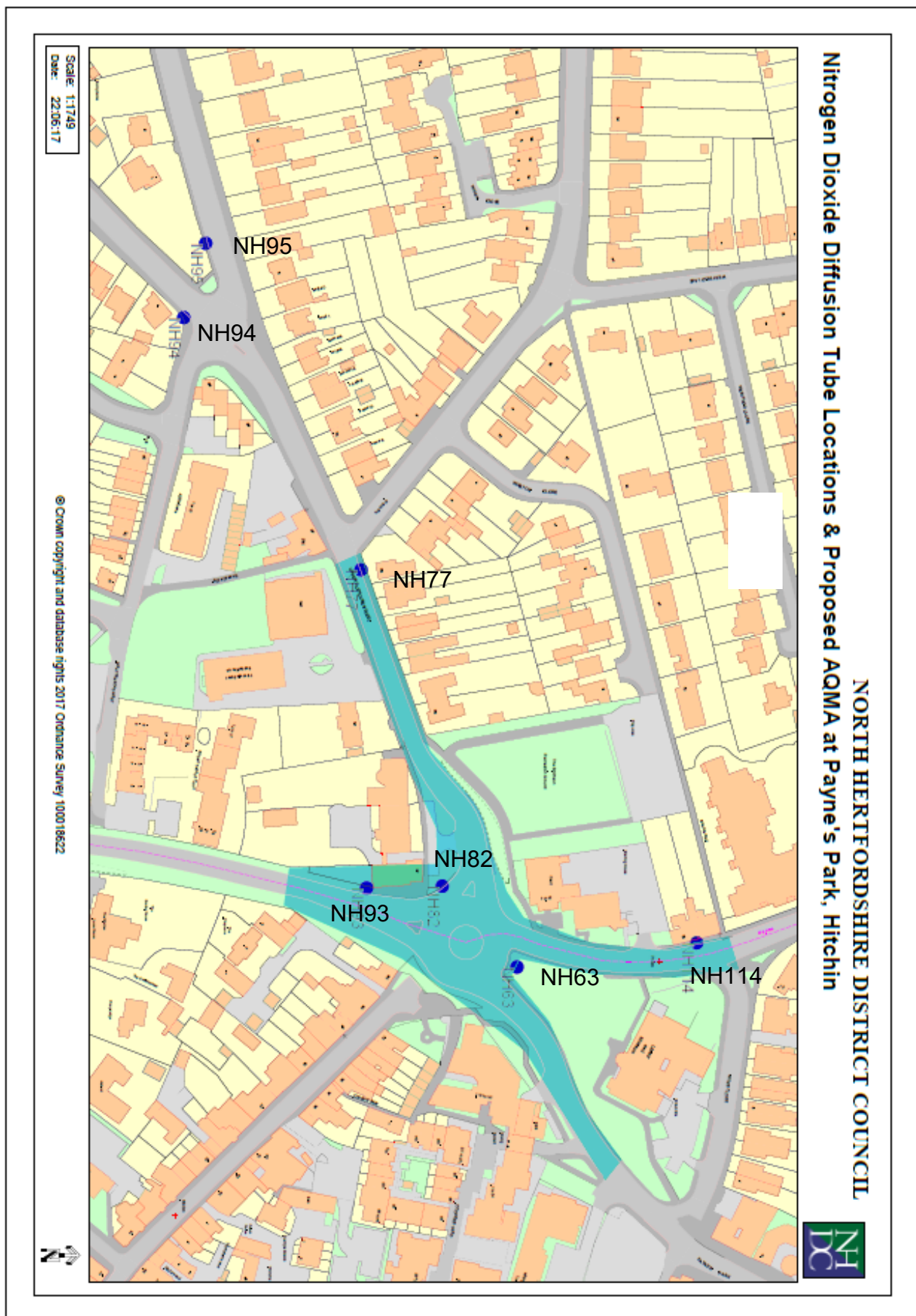


Figure D12: Diffusion Tube Monitoring Locations (NH93- NH95, NH77, NH82, NH63 & NH114) & Extent of AQMA at Payne's Park, Hitchin – 2021

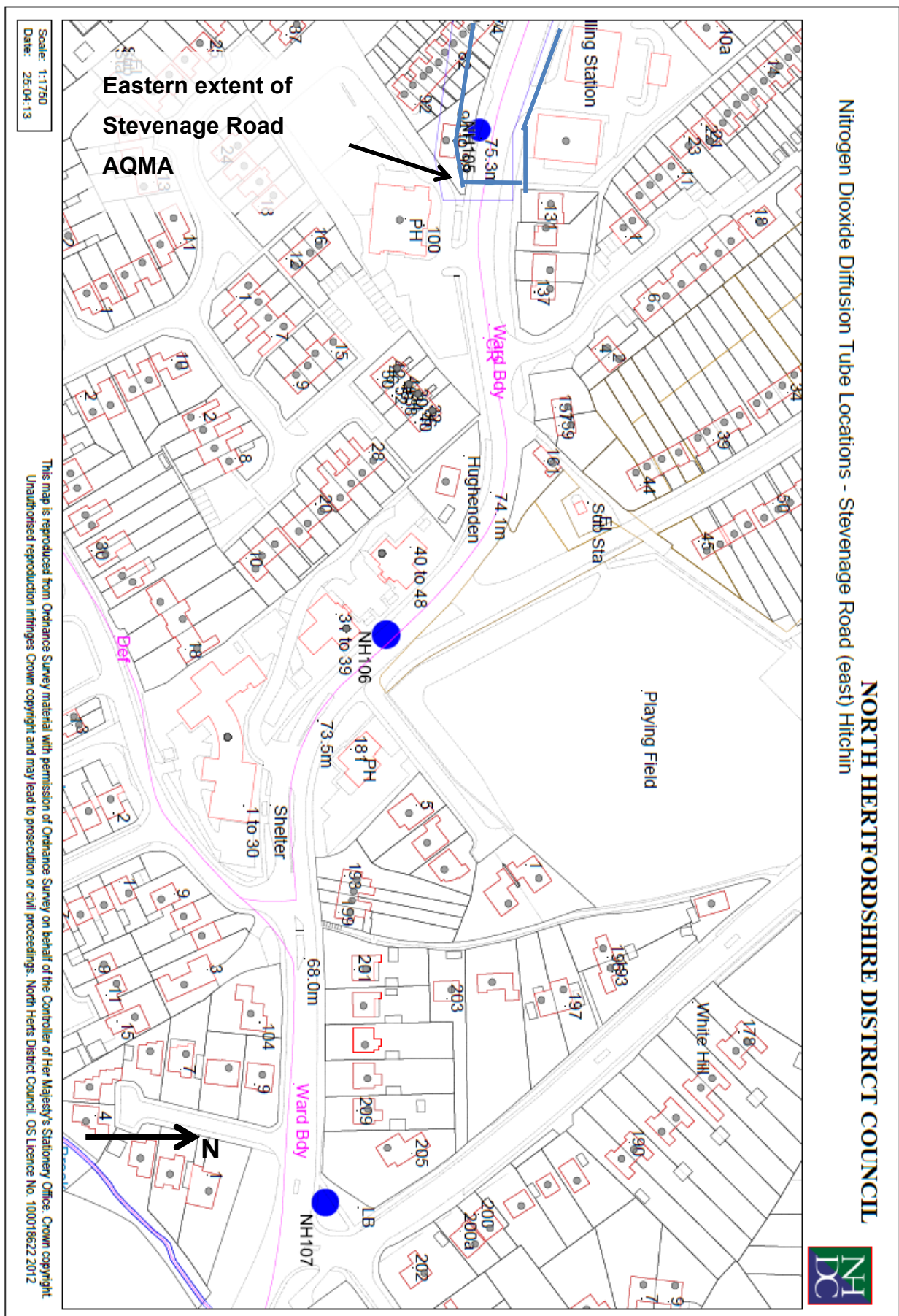


Figure D13: Diffusion Tube Monitoring Locations (NH105, NH106 & NH107) & Eastern Extent of the Stevenage Road AQMA at Stevenage Road, Hitchin – 2021

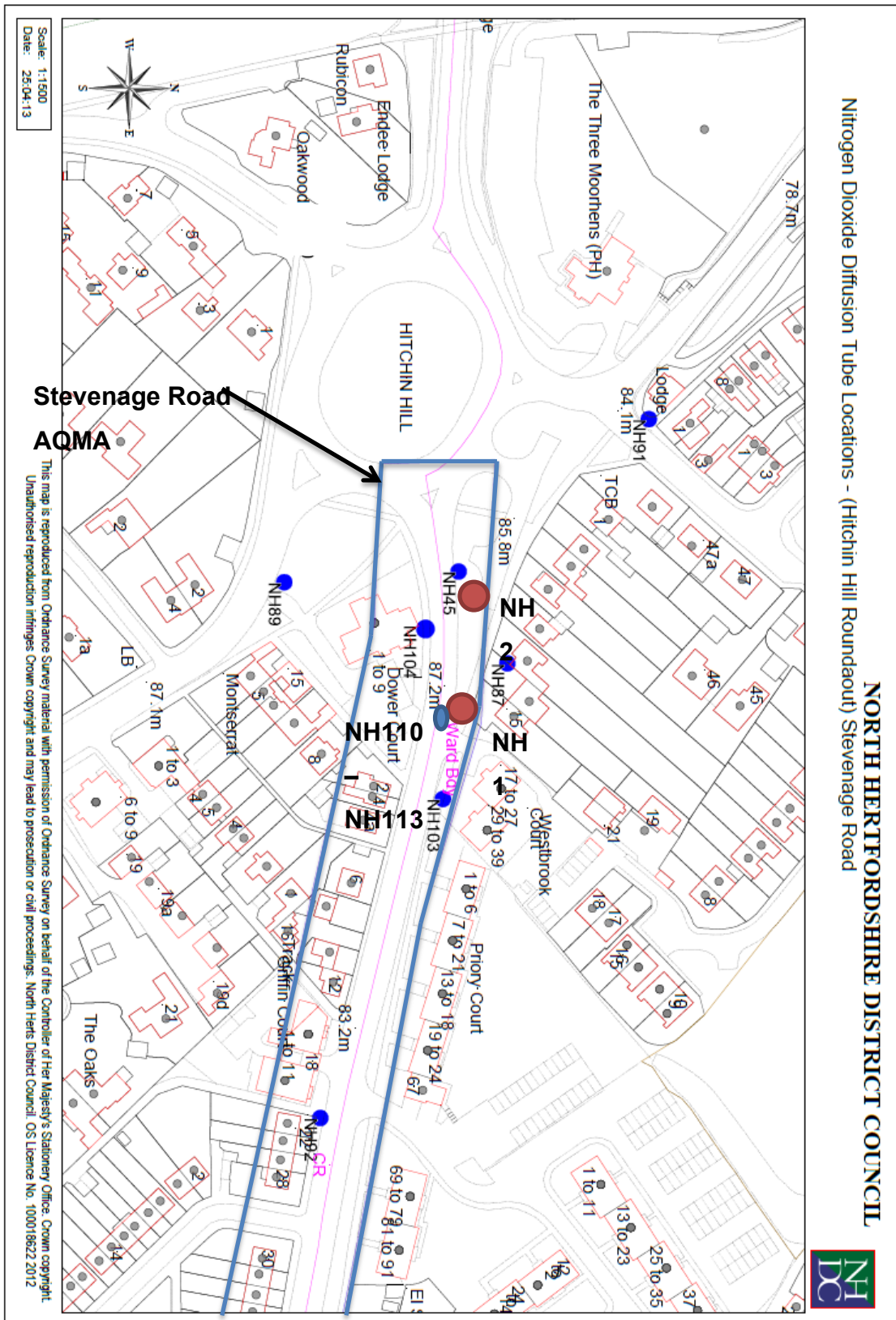


Figure D14: Diffusion Tube Monitoring Locations (NH45, NH87, NH89, NH91, NH92, NH103, NH104 & NH110-112), Real-Time Analyser Locations (NH1 and NH2) & the Stevenage Road AQMA at Stevenage Road, Hitchin – 2021

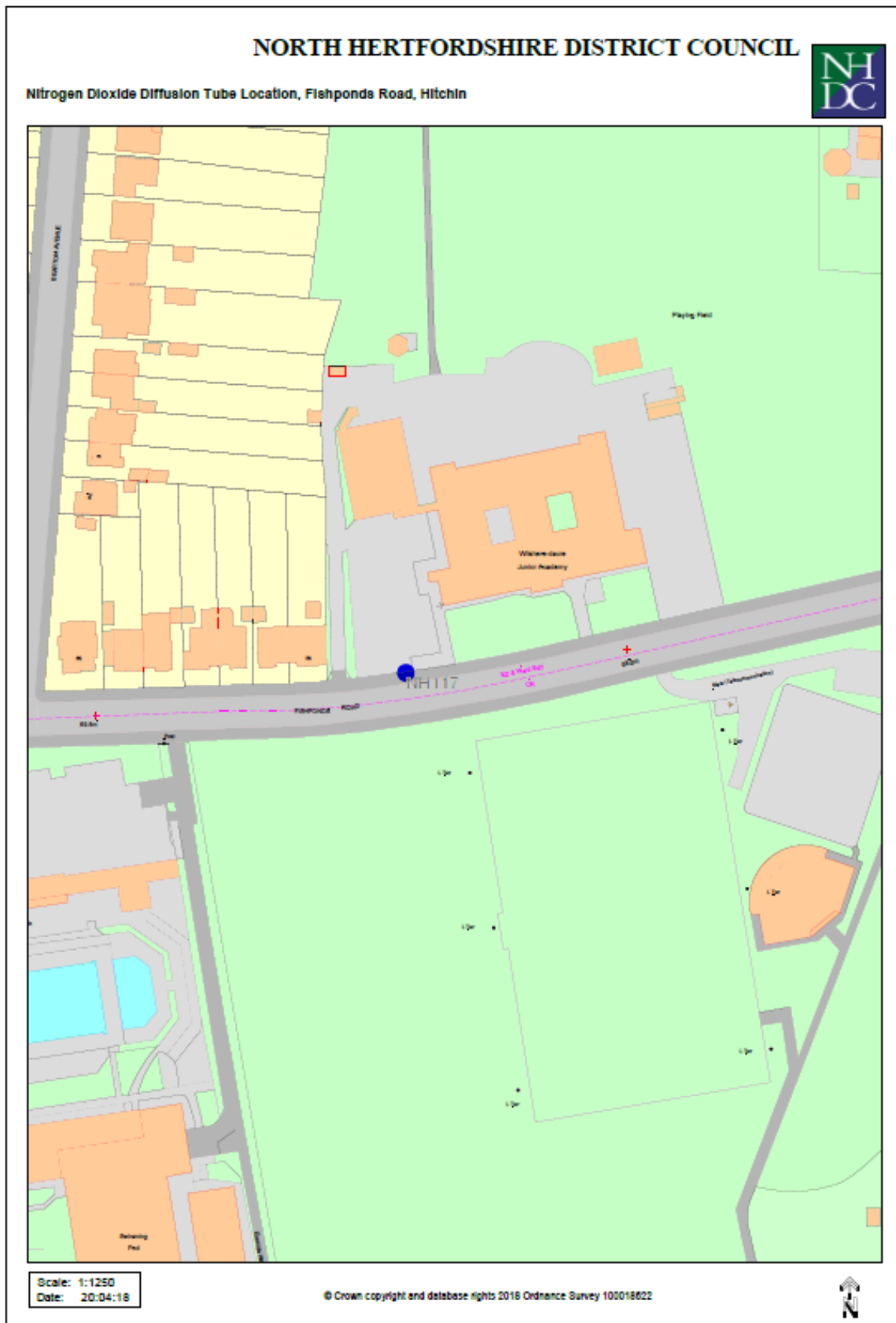


Figure D15: Diffusion Tube Monitoring Location (NH117) at Fishponds Road, Hitchin - 2021

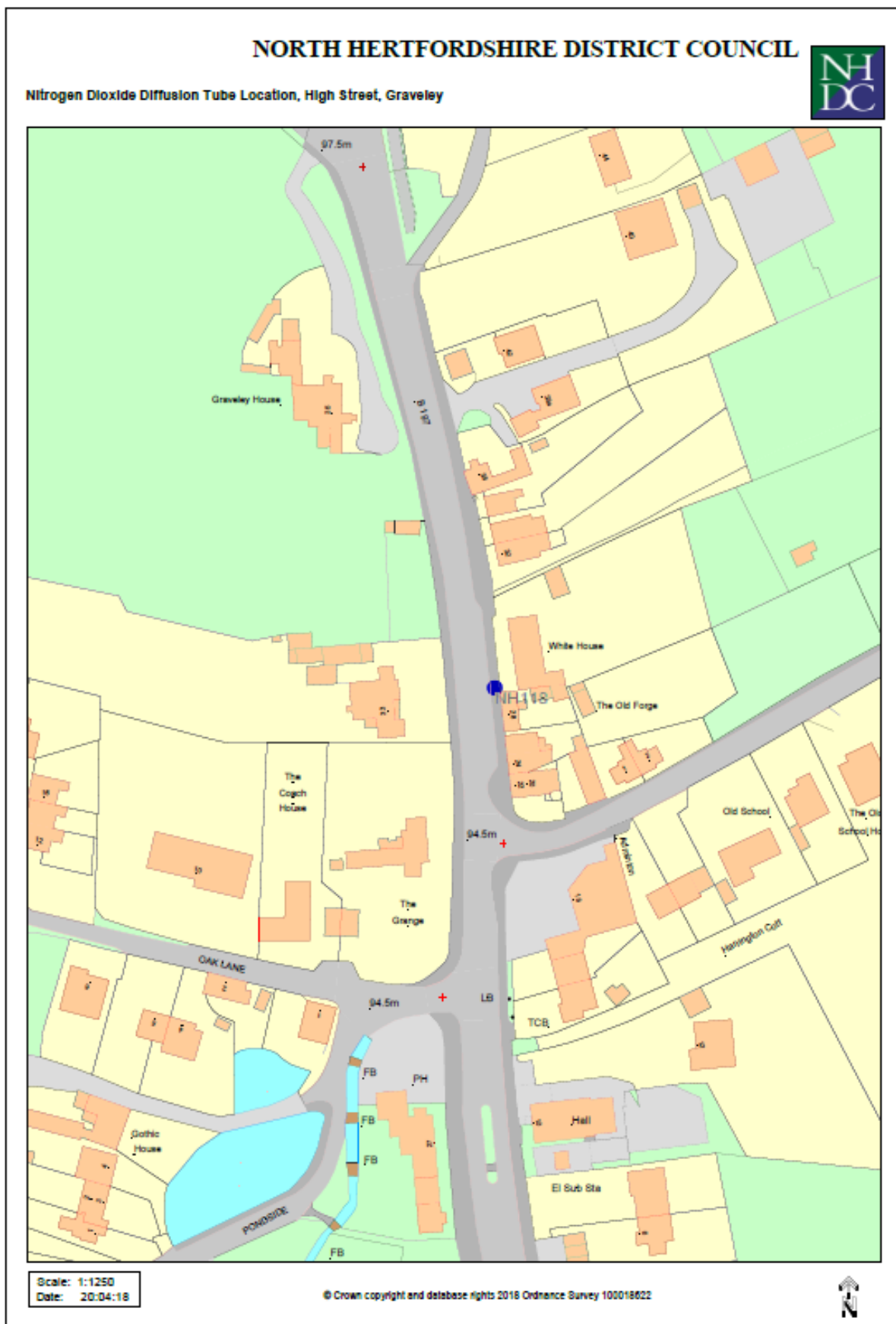


Figure D16: Diffusion Tube Monitoring Location (NH118) at High Street (27), Graveley – 2021

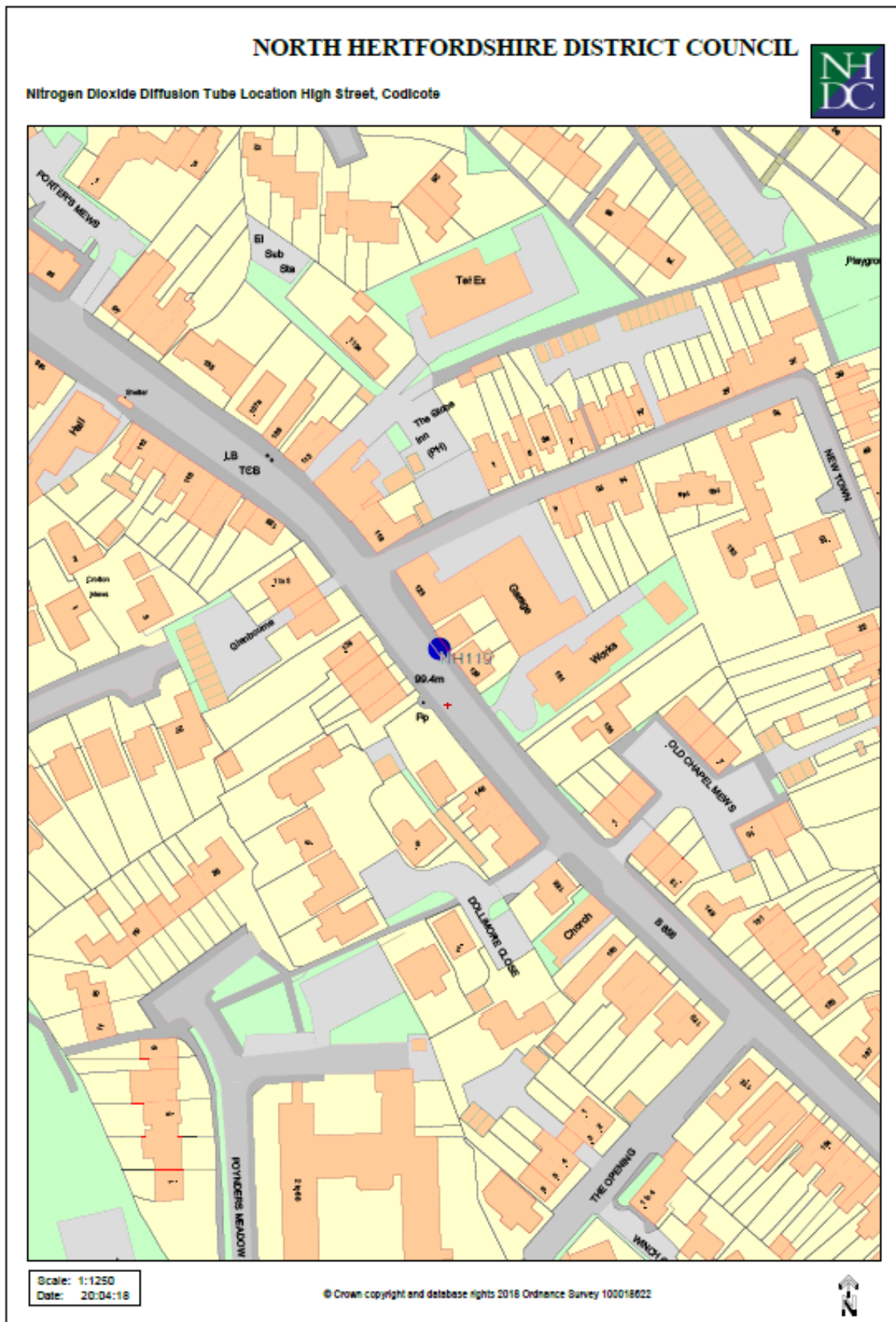


Figure D17: Diffusion Tube Monitoring Location (NH119) at High Street (125), Codicote - 2021

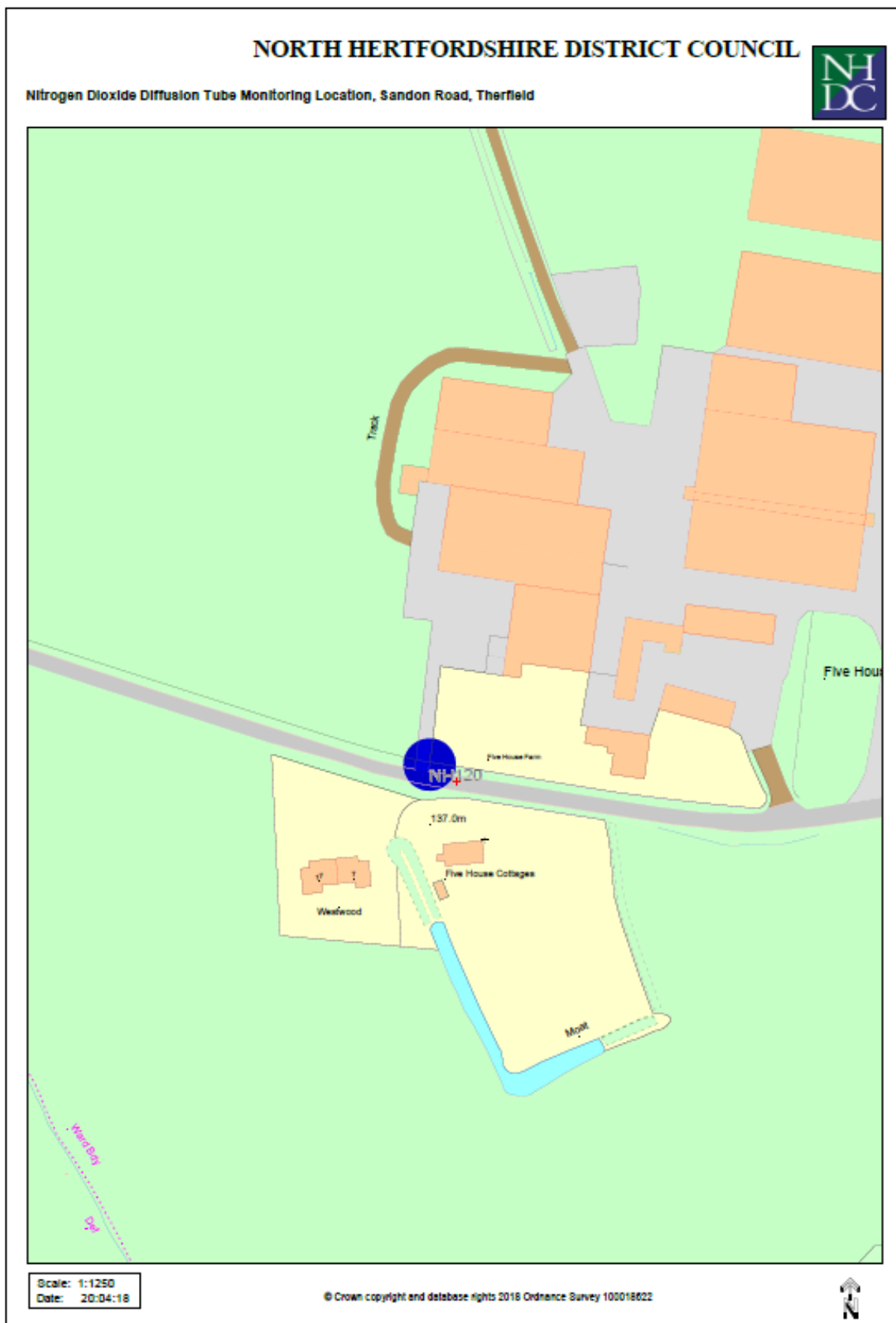


Figure D18: Diffusion Tube Monitoring Location (NH120) at Five House Farmhouse, Sandon Lane, Therfield - 2021

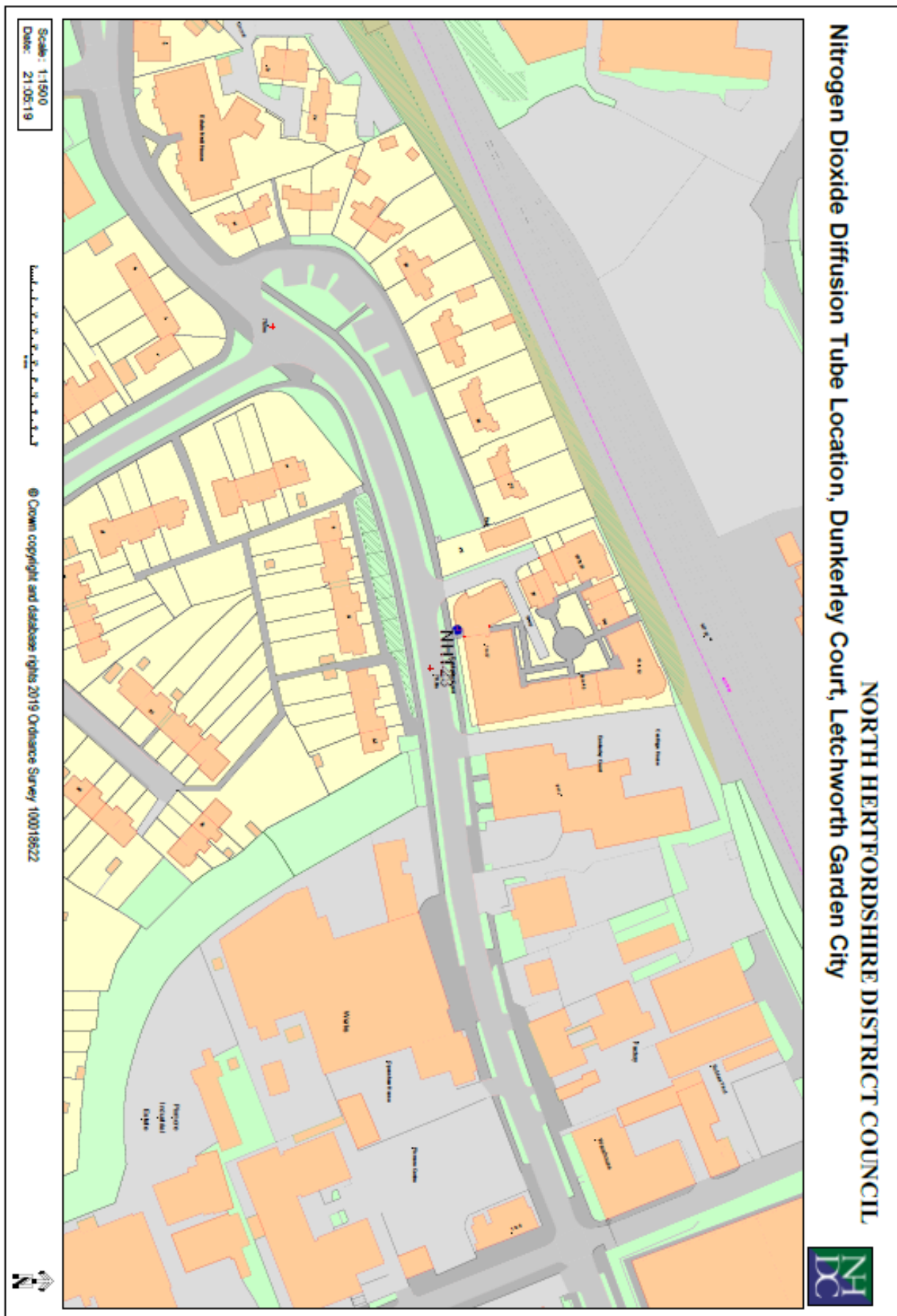


Figure D19: Diffusion Tube Monitoring Location (NH123) at Dunkerley Court, Letchworth Garden City - 2021



Figure D20: Diffusion Tube Monitoring Location (NH124) at 82 Bedford Road, Letchworth Garden City - 2019

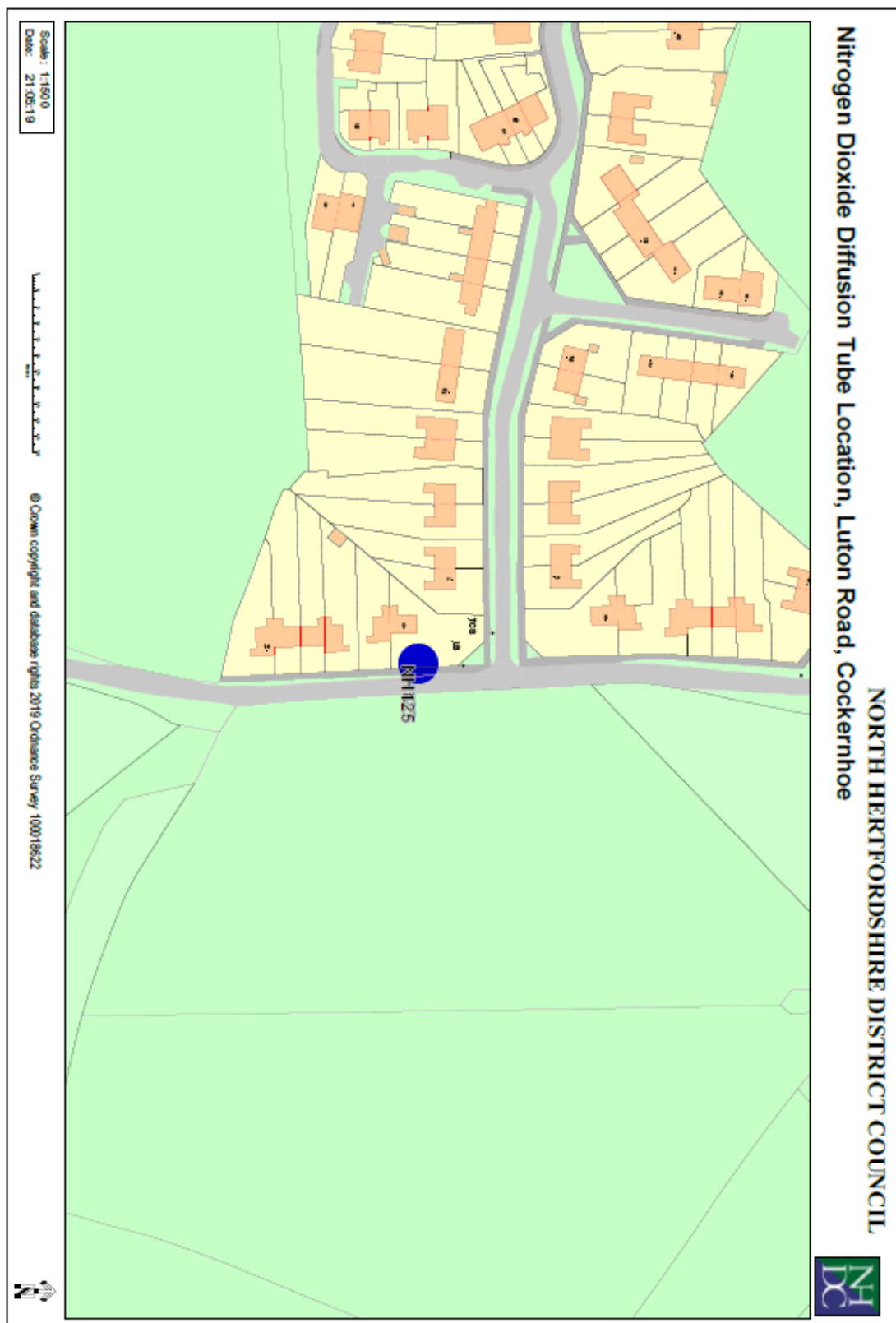


Figure D21: Diffusion Tube Monitoring Location (NH125) at 11 Luton Road, Cockernhoe - 2021



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England⁷

| 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 |

⁷ The units are in microgrammes of pollutant per cubic metre of air (µg/m³).

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.TG16. April 2021. 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.PG16. May 2016. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
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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>