

Annual Progress Report (APR)



2025 Air Quality Annual Progress Report (APR) for The Highland Council

In fulfilment of Part IV of the Environment Act 1995, as amended by the
Environment Act 2021

Local Air Quality Management

27 June 2025

The Highland Council

Information	The Highland Council Details
Local Authority Officer	Gregor MacCormick Senior EHO Esther MacRae Scientific Officer Nick Thornton EH Technical Officer
Department	Place Service Cluster - Environmental Health and Bereavement Services
Address	38 Harbour Road, Inverness, IV1 1UF
Telephone	01349886603
E-mail	gregor.maccormick@highland.gov.uk esther.macrae@highland.gov.uk nick.thornton@highland.gov.uk
Report Reference Number	THC.LAQM.APR.2025
Date	27 June 2025

Executive Summary: Air Quality in Our Area

Air Quality in The Highland Council

Air quality in the Highlands is generally good. In 2014 an Air quality Management Area (AQMA) was declared for a small area of Inverness city centre after monitoring revealed that UK Air Quality Strategy Objectives for nitrogen dioxide were not being met. Since then, the Highland Council has worked with partners to progress actions that have improved, and continue to improve, air quality. In recent years a significant and sustained reduction in nitrogen dioxide air pollution has been recorded throughout the Highlands, and especially within the AQMA, where measures such as the electrification of a large proportion of the bus fleet have taken place. All Scottish Government Air Quality objectives have been achieved in Highland since 2020. The Inverness City Centre AQMA was formally revoked on 1st June 2025. A link to the Revocation Order and supporting documents can be found on the [Highland Council Air Pollution website](#).

Figure 1 Raigmore Bus Gate, Inverness



Actions to Improve Air Quality

The Highland Council revised and updated an Action Plan for the former AQMA in 2024. The Council will continue to work with partners to progress actions in the following six broad areas:

- Action 1 – Promote smarter travel choices,
- Action 2 – Actively promote low emission vehicles and supporting infrastructure,
- Action 3 – Use the planning system to ensure that air quality is fully considered for new development,
- Action 4 – Traffic management to reduce emissions within the AQMA,
- Action 5 – Communication to inform the public about health impacts of air pollution and how they can change behaviour to reduce emissions and reduce exposure,
- Action 6 – Continue to monitor and assess air quality in line with government guidance for LAQM.

The most significant action plan measure progressed in 2024 was the opening of the Riverside Way active travel route which provides an important accessible commuter and leisure route from the southwest to Inverness city centre alongside the River Ness.

Local Priorities and Challenges

The Highland Council will be working with partners to progress measures included in the action plan and the Action Points identified above.

How to Get Involved

Information on air quality within the Highlands can be obtained at [The Highland Council Pollution web pages](#).

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1 Local Air Quality Management

This report provides an overview of air quality in The Highland Council during 2024. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995), as amended by the Environment Act (2021), and the relevant Policy and Technical Guidance documents.

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where an exceedance is considered likely the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives. This Annual Progress Report (APR) summarises the work being undertaken by The Highland Council to improve air quality and any progress that has been made.

Table 1.1 – Summary of Air Quality Objectives in Scotland

Pollutant	Air Quality Objective Concentration	Air Quality Objective Measured as	Date to be Achieved by
Nitrogen dioxide (NO ₂)	200 µg/m ³ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
Nitrogen dioxide (NO ₂)	40 µg/m ³	Annual mean	31.12.2005
Particulate Matter (PM ₁₀)	50 µg/m ³ , not to be exceeded more than 7 times a year	24-hour mean	31.12.2010
Particulate Matter (PM ₁₀)	18 µg/m ³	Annual mean	31.12.2010
Particulate Matter (PM _{2.5})	10 µg/m ³	Annual mean	31.12.2021
Sulphur dioxide (SO ₂)	350 µg/m ³ , not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
Sulphur dioxide (SO ₂)	125 µg/m ³ , not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
Sulphur dioxide (SO ₂)	266 µg/m ³ , not to be exceeded more than 35 times a year	15-minute mean	31.12.2005
Benzene	3.25 µg/m ³	Running annual mean	31.12.2010
1,3 Butadiene	2.25 µg/m ³	Running annual mean	31.12.2003
Carbon Monoxide	10.0 mg/m ³	Running 8-Hour mean	31.12.2003

2 Actions to Improve Air Quality

2.1 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 must prepare publish and implement an Air Quality Action Plan (AQAP) within the shortest possible time and no later than 12 months of the date of AQMA Designation Order. The AQAP must set out measures the local authority intends to put in place in pursuit of the objectives within the shortest possible time Measures should be provided with milestones and a final date for completion. The action plan itself should have a timescale for completion and for revocation of the AQMA. Where measures to reduce air pollution may require a longer timescale an action plan shall be reviewed and republished within five years of initial publication and then five-yearly thereafter.

A summary of AQMA declared by The Highland Council can be found in Table 2.1 . Further information related to declared or revoked AQMA, including maps of AQMA boundaries are available online at [DEFRA UK AIR Local Authority Details page for The Highland Council](#)

The Inverness City Centre AQMA was revoked on the 1st June 2025. Information concerning the former Inverness City Centre AQMA and revocation order can be found on The Highland Council [Air Pollution website](#).

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Pollutants and Air Quality Objectives	City / Town	Description	Action Plan
Inverness City Centre AQMA (revoked)	Nitrogen dioxide annual mean 40ug/m3	Inverness	The designated area incorporated 6 Queensgate and 62 Academy Street, Inverness	The Highland Council Air Quality Action Plan 2024

2.2 Implementation of Air Quality Action Plan(s) and/or measures to address air quality

In order to ensure that local authorities implement the measures within an action plan by the timescales stated within that plan, the Scottish Government expects authorities to submit updates on progress through the APR process. The Highland Council has taken forward a number of measures within the action plan during the current reporting year of 2024 in pursuit of improving local air quality and meeting the air quality objectives within the shortest possible time. Details of all measures completed, in progress or planned are set out in Table 2.2. More detail on these measures can be found in the air quality Action Plan relating to the former Inverness AQMA.

Key completed measures for this reporting year are:

- The opening of the Riverside Way active travel route which provides an important accessible commuter and leisure route from the southwest to Inverness city centre alongside the River Ness.
- Publication of The Highland Council [Active Travel Strategy 2024-2030](#)

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

- Pedestrian Friendly Academy Street proposals have not been agreed for the redesign of Academy Street. This is due to ongoing discussions between key stakeholders and lack of agreement on way forward which will be acceptable to the stakeholders and the funder (Sustrans) design requirement for traffic reduction. It is unknown when this will be resolved.

The Highland Council expects the following measures to be completed over the course of the next reporting year:

- Inverness Raigmore Interchange – signalised crossing to make the junction safer for non-motorised users.
- Accessibility improvements of footpaths in the Hilton and Merkinch areas of Inverness.
- A shared use path on Smithton Road linking to the National Cycle Network.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	Category	Expected/ Actual Completion year	Organisations Involved	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
1	Promote Active Travel	Promoting travel alternatives	Ongoing	The Highland Council	In progress	Clean Air Day event funded from Scottish Government Air Quality grant. Funding also sourced from Council budget, and partners such as Sustrans	Number of schools undertaking Bikeability increased.	Funding secured for dedicated Bikeability Instructors for 2024/25 to support volunteers to continue delivery roll out to Highland Primary Schools Funding also for behaviour change posts covering community & workplace activities. Expansion of Highland Council's e-cargo bike scheme. <u>Clean Air Day 2024</u> was marked by an Awareness Event in Inverness City Centre with partner organisations.	n/a

Measure No.	Measure	Category	Expected/ Actual Completion year	Organisations Involved	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
2	Improvement of Active Travel Infrastructure	Transport Planning and Infrastructure	Ongoing	The Highland Council Transport Scotland Hitrans	In progress and planned	Not funded from Scottish Government Air Quality grant. Various active travel infrastructure projects in progress/planned by Highland Council in Inverness, some of which are funded/ part funded by Sustrans. Some are still to attract funding. Larger projects include: Riverside Way – Active travel improvements Raigmore Interchange – non-motorised traffic improvements	Agreement of design proposals Securing funding for project Appointing contractor for works Completion of works	Riverside Way – Active travel route completed and opened in 2024. Work to continue this link to the Botanic Gardens is planned for 2025. Transport Scotland have intimated that the A9 Raigmore Interchange pedestrian crossing is programmed for end 2025. TS are leading on this project. Several accessibility improvements (dropped kerbs, widened footways) planned for Hilton and Merkinch areas of Inverness. A new shared use path is planned for Smithton Road linking to the National Cycle Network. Installation of 17 six-bike storage pods for use of residents in flats in Raigmore area of Inverness. Additional roll out of HiBike e-bike docks planned for Raigmore Hospital, Torvean Mobility Hub and Inverness Townhouse	Design improvements for Academy Street did not meet approval and alternative funding sources have not been identified.
3	Active Travel Strategy	Promoting Travel Alternatives	2024	The Highland Council	Completed with progress reviews ongoing	Not funded from Scottish Government Air Quality grant.	Ongoing review of agreed Strategy workflow (linked to Measure 2 above)	The Highland Council <u>Active Travel Strategy 2024-2030</u> published. Identifies active travel improvement projects which can then be put forward for funding when application sources become available.	n/a

Measure No.	Measure	Category	Expected/ Actual Completion year	Organisations Involved	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
4	Promote Active Travel in Schools	Promoting Travel Alternatives	2025 and ongoing	The Highland Council	In progress	Not funded from Scottish Government Air Quality grant. This has been funded in the past by Sustrans - Safer Routes to School. The funding model changed in 2024, however this work continues.	Provision of large and small grant funding to schools	Schools can apply for large and small grant funding for improvements such as cycle and scooter storage; access improvements; pupil reward schemes (Go For It) and banners	n/a
5	School Street Zone	Promoting Travel Alternatives	2025/26	The Highland Council	Planned	Not funded from Scottish Government Air Quality grant. This trial has been funded by Sustrans - Safer Routes to School.	Completion of pilots at 4 schools	Temporary school street zones pilot for Duncan Forbes Primary, Bishop Eden Primary, Kirkhill Primary and Pennyland Primary planned for 2025/26	Legal issues delayed the start of the pilot
6	Schools Education and Monitoring Project	Promoting Travel Alternatives	2025	The Highland Council	In progress	Funded by Scottish Government Air Quality grant scheme	Completion of monitoring and presentations in 6 schools	Combination of NO ₂ diffusion tubes monitoring and real-time low-cost monitors for NO ₂ and PM, followed by presentation to P6/P7 pupils. Since 2021, this project has been delivered to 16 Inverness schools and a further 6 schools in other Highland towns	n/a
7	Promotion and encouragement of online tool for car sharing	Alternatives to Private Vehicle Use	Ongoing	HiTrans	In progress	Not funded from Scottish Government Air Quality grant	Completed	HiTravel liftshare scheme in operation: https://liftshare.com/uk/community/hiTravel	n/a

Measure No.	Measure	Category	Expected/ Actual Completion year	Organisations Involved	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
8	Low Emission Buses	Vehicle Fleet Efficiency	Ongoing	The Highland Council and private companies	In progress	Not funded from Scottish Government Air Quality grant. This project was part funded by Scottish Government - Scottish Zero Emission Bus Scheme and private investment	LEV Buses on Stagecoach Inverness City Routes LEV Buses on Highland Council school transport routes LEV Buses on long distance routes	25 LEV buses on Stagecoach city centre routes since December 2022. This has corresponded with an annual decline in the annual hourly mean NO ₂ measured at an automatic roadside monitor in Queensgate from 29µg/m ³ in 2021 and 2022 to 18 µg/m ³ in 2024 – a 37% decrease. Further improvements anticipated if other buses passing through AQMA were LEV	n/a
9	EV Charge Point Infrastructure	Promoting Low Emission Transport	Ongoing	The Highland Council	In progress	Not funded from Scottish Government Air Quality grant. This project is funded by Scottish Government EV Infrastructure Fund	Continued roll out of EV charge points	Highland Council currently host 119 public EV charge points. A contract for further EV charging infrastructure has been agreed with EasyGo, including 570 new charging points across the north of Scotland region by 2028 (comprises Highland, Aberdeen City, Aberdeenshire and Moray).	n/a

Measure No.	Measure	Category	Expected/ Actual Completion year	Organisations Involved	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
10	Low Emission Council Fleet	Vehicle Fleet Efficiency	2030 or beyond for some ULEV large vehicles	The Highland Council	In progress	Not funded from Scottish Government Air Quality grant. Funding for this project is sourced from various Scottish Government projects and Highland Council budget	Continued changeover to LEV to fleet when renewing vehicles	The Highland Council, in collaboration with Enterprise Car Club, now operate a fleet of 80+shared asset car club vehicles, the majority being plug-in hybrids or EV. Currently the Council operates 93 electric/EV hybrid vehicles, which represents 13% of the light commercial fleet. E-cargo bike trials are also ongoing in some offices. EV charging units commissioned across 5 Highland Council depots in Alness, Dingwall, Inverness and Fort William	n/a

Measure No.	Measure	Category	Expected/ Actual Completion year	Organisations Involved	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
11	Bus Partnership Fund Projects	Transport Planning and Infrastructure	Unknown	The Highland Council	Paused	Not funded from Scottish Government Air Quality grant. Projects has been funded by Transport Scotland; however, TS paused in funding from 2024	Agreement of STAG appraisals Agreement of design proposals Securing funding for project Appointing contractor for works Completion of works	1. Raigmore Bus Gate linking hospital with Raigmore estate – Opened Spring 2024. 2. Rose Street enforcement camera to deter unauthorised use of Foundry Way bus link – complete. 3. City Centre Traffic Light Priority to allow bus priority dependent on real time info -upgrades complete. 4. Connecting Inverness STAG appraisal – submitted to TS for review (April 2023). 5. B9006 Bus Priority STAG appraisal to enhance bus journey time and reliability –public engagement complete, report under preparation. 6. Millburn Corridor Bus Priority and Active Travel STAG Appraisal - public engagement complete, report under preparation	Funding paused awaiting outcome of applications to TS. Only some elements of projects 4-6 likely to be funded.
12	Public Information about the AQMA	Public Information	Ongoing	The Highland Council	In progress	Not funded from Scottish Government Air Quality grant	Publication of Annual Progress Report on Council website	Each year the APR is published on the Council's website: https://www.highland.gov.uk/info/1281/pollution/73/pollution/2	n/a
13	Traffic Count Monitoring	Traffic Management	Ongoing	The Highland Council	In progress	Not funded from Scottish Government Air Quality grant	Provision of vehicle number and speed data to DfT	Data viewed here https://roadtraffic.dft.gov.uk/local-authorities/35	n/a

Measure No.	Measure	Category	Expected/ Actual Completion year	Organisations Involved	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
14	Planning Application Review and assessment	Policy Guidance and Development Control	Ongoing	The Highland Council	In progress	Not funded from Scottish Government Air Quality grant	Identifying Planning Applications requiring EIA or potential significant air quality impacts Applying conditions to Planning Consents Ensuring that conditions are complied with	Planning Applications/developments with significant potential air quality impacts and their mitigations are reported in the Annual Progress Report	n/a

3 Air Quality Monitoring Data and Comparison with Air Quality Objectives

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

This section sets out what monitoring has taken place and how local concentrations of the main air pollutants compare with the objectives.

The Highland Council undertook automatic (continuous) monitoring at 2 sites during 2024. Both these sites are situated in Inverness on Queensgate, within the revoked AQMA, measuring NO_x; one at street level, the other at first floor height at the location of residential dwellings (there are no ground level dwellings within the AQMA). There are also 3 sites within the Highland Council area operated on behalf of DEFRA as part of the AURN. These sites are situated in Fort William (NO_x and O₃), Inverness Telford Street (NO_x and PM), and Strath Vaich (O₃).

Table A.1 in Appendix A shows the details of the sites. National monitoring results are available at <https://www.scottishairquality.scot/>

Maps showing the location of the monitoring sites are provided in Appendix A. 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

The Highland Council undertook non- automatic (passive) monitoring of NO₂ at 40 sites during 2024. Table A.2 in Appendix A shows the details of the sites.

Maps showing the location of the monitoring sites are provided in Appendix A. Further details on Quality Assurance/Quality Control (QA/QC) and bias adjustment for the diffusion tubes are included in Appendix C.

8 new diffusion tube sites were installed towards the end of the monitoring year. One site, RC1, was discontinued during 2024 following persistent tampering with the monitoring equipment. Details of the new site locations and photographs are provided in Appendix A.

3.1.3 Other Monitoring Activities

The Highland Council undertook monitoring with low-cost sensors during 2024. Six Earthsense Zephyr® units measured oxides of Nitrogen and fine particles. The sensors were deployed around primary schools to support an educational project within the schools. The data was used, alongside NO₂ diffusion tube monitoring at locations around the school to demonstrate monitoring methods to pupils. Details of the project and the monitoring undertaken are included in Appendix D.

3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for annualisation and bias. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO₂)

Table A.3 in Appendix A compares the ratified monitored NO₂ annual mean concentrations at automatic monitoring sites, for the past five years, with the air quality objective of 40 µg/m³.

Table A.4 in Appendix A compares the adjusted monitored NO₂ annual mean concentrations at non-automatic monitoring sites for the past five years with the air quality objective of 40 µg/m³.

The full 2024 dataset of diffusion tube monthly mean values is provided in Appendix B.

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 200 µg/m³, not to be exceeded more than 18 times per year.

None of the monitoring for NO₂ in Highland in 2024 exceeded the air quality objectives. The highest annual mean recorded was 22.4 µg/m³ at site IV2G on Academy Street in Inverness. Site N2B, in Nairn, also recorded an annual mean of 22.3 µg/m³.

Nitrogen dioxide has shown a reducing trend within the AQMA in recent years. Discussion of monitoring trends is included in the appendices.

3.2.2 Particulate Matter (PM₁₀)

Table A.6 in Appendix A compares the ratified and adjusted monitored PM₁₀ annual mean concentrations for the past five years with the air quality objective of 18 µg/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 50 µg/m³, not to be exceeded more than seven times per year.

There were no exceedances of any of the PM₁₀ objectives in Highland in 2024.

3.2.3 Particulate Matter (PM_{2.5})

Table A.8 in Appendix A compares the ratified and adjusted monitored PM_{2.5} annual mean concentrations for the past five years with the air quality objective of 10 µg/m³.

There were no exceedances of the objectives for PM_{2.5} in Highland in 2024.

3.2.4 Sulphur Dioxide (SO₂)

No monitoring for sulphur dioxide was undertaken in Highland in 2024.

3.2.5 Carbon Monoxide, Lead and 1,3-Butadiene

No motoring for carbon monoxide, lead or 1,3-butadiene was undertaken in Highland in 2024.

4 New Local Developments

4.1 Road Traffic Sources

There are no new road traffic sources identified in Highland in 2024.

4.2 Other Transport Sources

There are no new airports, ports or locations of stationary diesel/steam trains identified in Highland in 2024.

4.3 Industrial Sources

There are no new Industrial installations, or significantly changed existing installations, major fuel storage depots storing petrol, petrol stations or poultry farms identified in Highland in 2024.

4.4 Commercial and Domestic Sources

One new biomass combustion plant was granted planning consent in 2024. Details of the development are in Appendix C. It was screened for air quality impact and found not to be significant.

4.5 New Developments with Fugitive or Uncontrolled Sources

No new potential sources of fugitive or uncontrolled particulate matter were identified in 2024.

5 Planning Applications

There are no major planning applications recently granted consent which will have a significant impact on air quality within Highland.

The following major developments have been granted Planning Consent or are pending consideration, however, information submitted to support the applications examined potential air quality impacts and found no significant issues. They are included to give an overview of major development proposals in Highland.

At Nigg in Ross-shire, consent was granted for engineering works to form a new eastern inner dock quay (reference 24/02674/FUL). The potential for air quality impacts was considered during the EIA scoping assessment and concluded that a full assessment was not required. However, the EIA supporting the application considered the risk of air quality impacts during both the construction and operational phase of the development. Recommendations included standard industrial practises to reduce dust emissions within the construction environment management plan.

Spittal Quarry in Caithness proposes an extension for the extraction of flagstones (reference 24/02943/FUL). This is currently pending consideration by the planning authority, however the EIA considered Air Quality including disamenity effects on human receptors which were classified as “slight adverse” to “moderate adverse”. Dust control measures currently used at the site are recommended for continued and new activity.

The former Ardersier fabrication yard and port in Inverness-shire is currently obtaining pre-planning consents and investigations which will lead to a further major Planning Application for the expansion of the port and related activities which will be considered by The Highland Council in future. The EIA Scoping study considered air quality and concluded that both the construction and operational phase of the development would not result in a material impact on air quality and full consideration in an EIA is not required. However, an assessment of construction dust risk will be completed to ensure the appropriate level of dust mitigation is applied (reference 25/00226/SCOP).

At Kiltarlity, Inverness-shire, a new 400kV electrical substation, high voltage direct current converter station, and ancillary development is proposed to allow greater grid capacity to meet government Net Zero climate change targets. The EIA Scoping study considered air

quality and concluded that both the construction and operational phase of the development would not result in a material impact on air quality and full consideration in the EIA was scoped out. However, the Applicant recognises that some localised temporary construction related releases may occur, including increased vehicle emissions. This will be controlled in accordance with a suitable Construction Environment Management Plan (reference 24/02655/SCOP and 25/00826/FUL). This application is currently under consideration by the Highland Council.

6 Conclusions and Proposed Actions

6.1 Conclusions from New Monitoring Data

No exceedances of any of the air quality objectives were identified in Highland in 2024.

There has been a significant reducing trend for nitrogen dioxide within the AQMA and at other locations within Inverness City since 2019.

Nitrogen dioxide concentrations within the AQMA are now well below the objectives and have been for the last four years.

The Inverness City Centre AQMA was therefore revoked on the 1st June 2025.

6.2 Conclusions relating to New Local Developments

One biomass development and one major planning application for development of a new quay were approved for development. They were considered for air quality impacts and not found to be significant.

6.3 Proposed Actions

New monitoring data has not identified any new exceedances of the objectives for any pollutant.

A need for additional monitoring or changes to the current monitoring programme has not been identified.

The Highland Council will continue to work with partners to progress action plan measures.

The Highland Council intend to work with partners to develop an ambitious and sustainable Air Quality Strategy for Highland.

The Highland council will continue monitor air quality and to complete Air Quality Annual Progress Reports.

Appendix A: Monitoring Results

Figure A 1 Map of diffusion tube locations

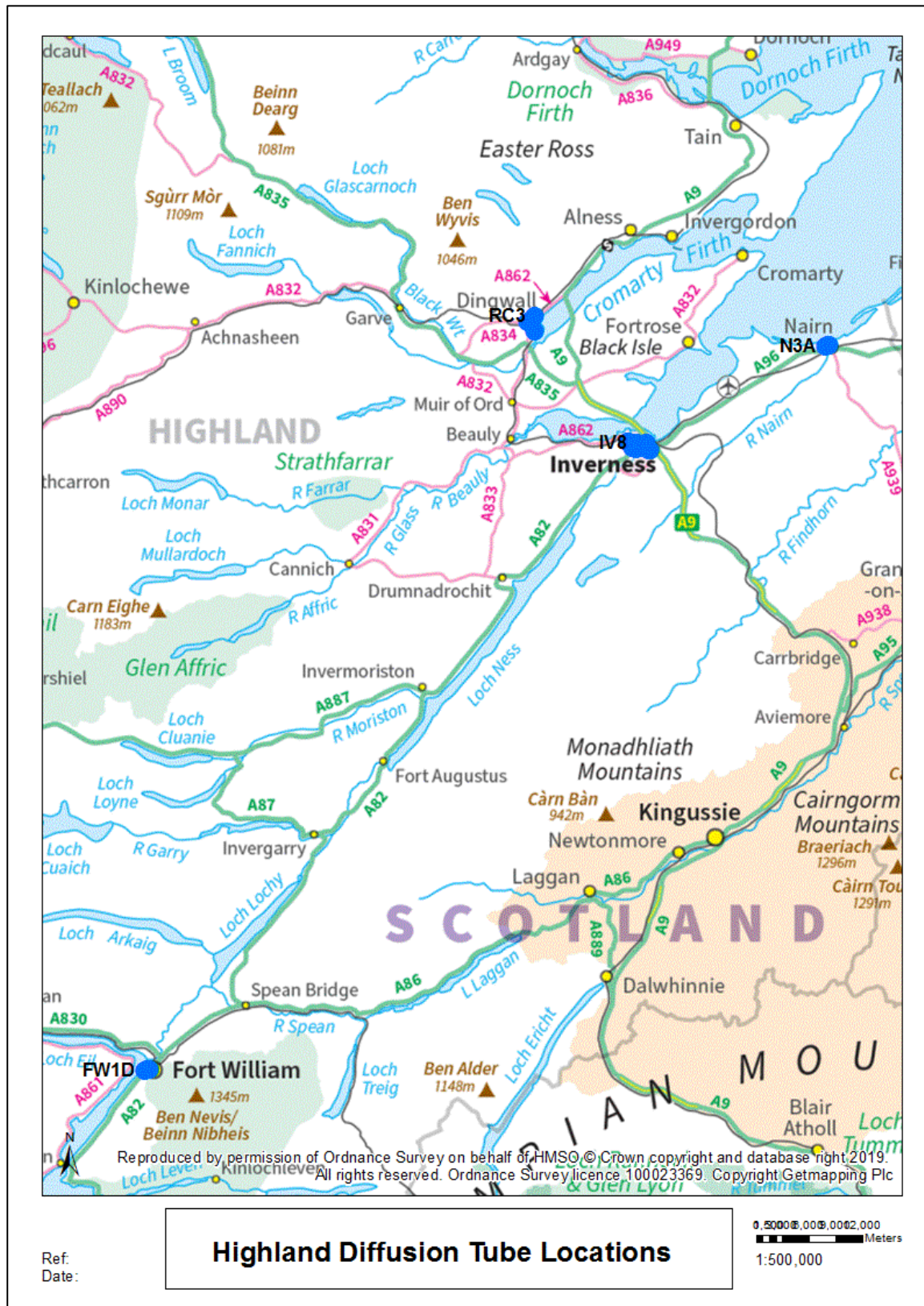


Figure A 2 Map of Automatic Monitoring locations in Highland

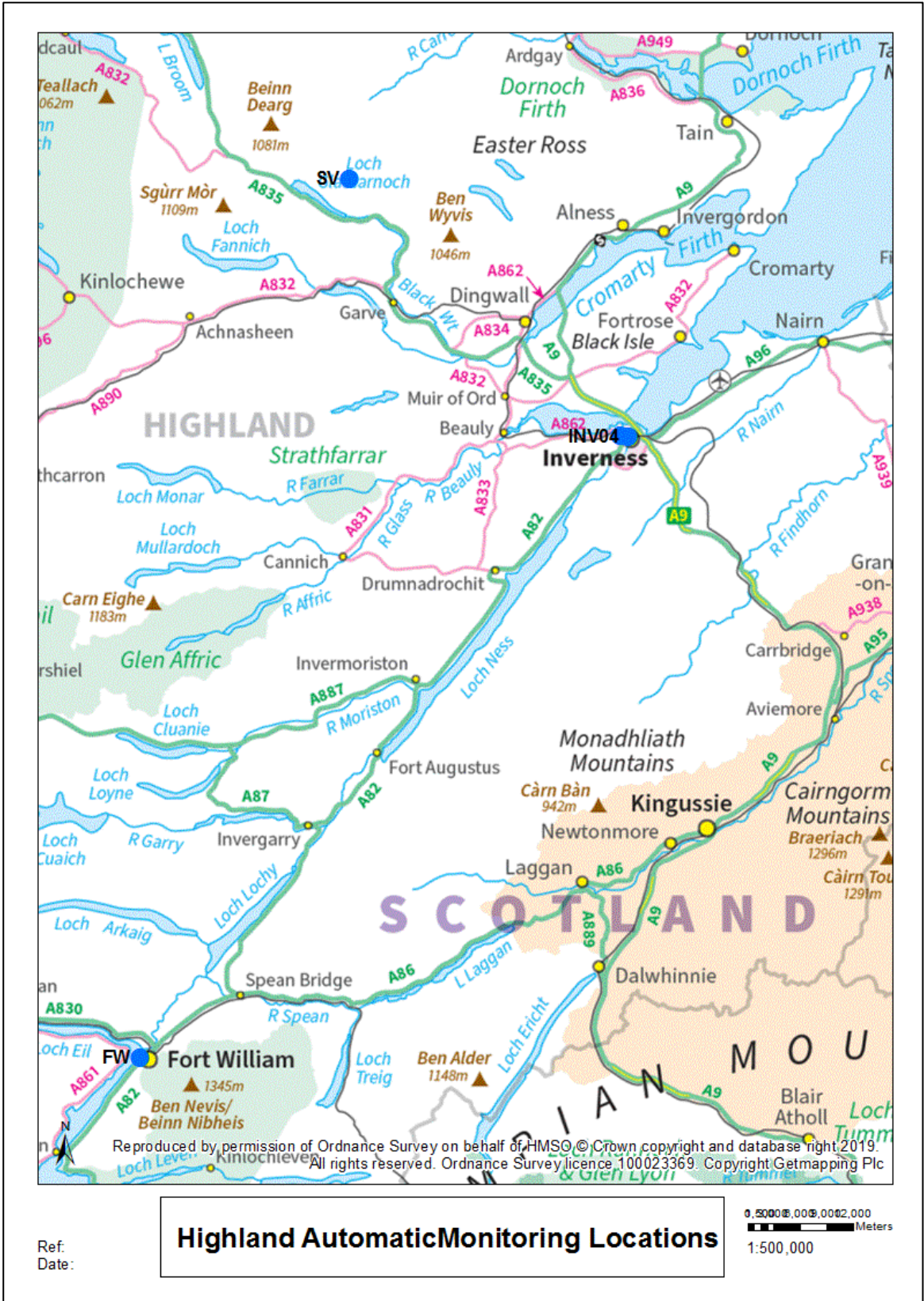


Figure A 3 Map of Automatic Monitoring in Inverness

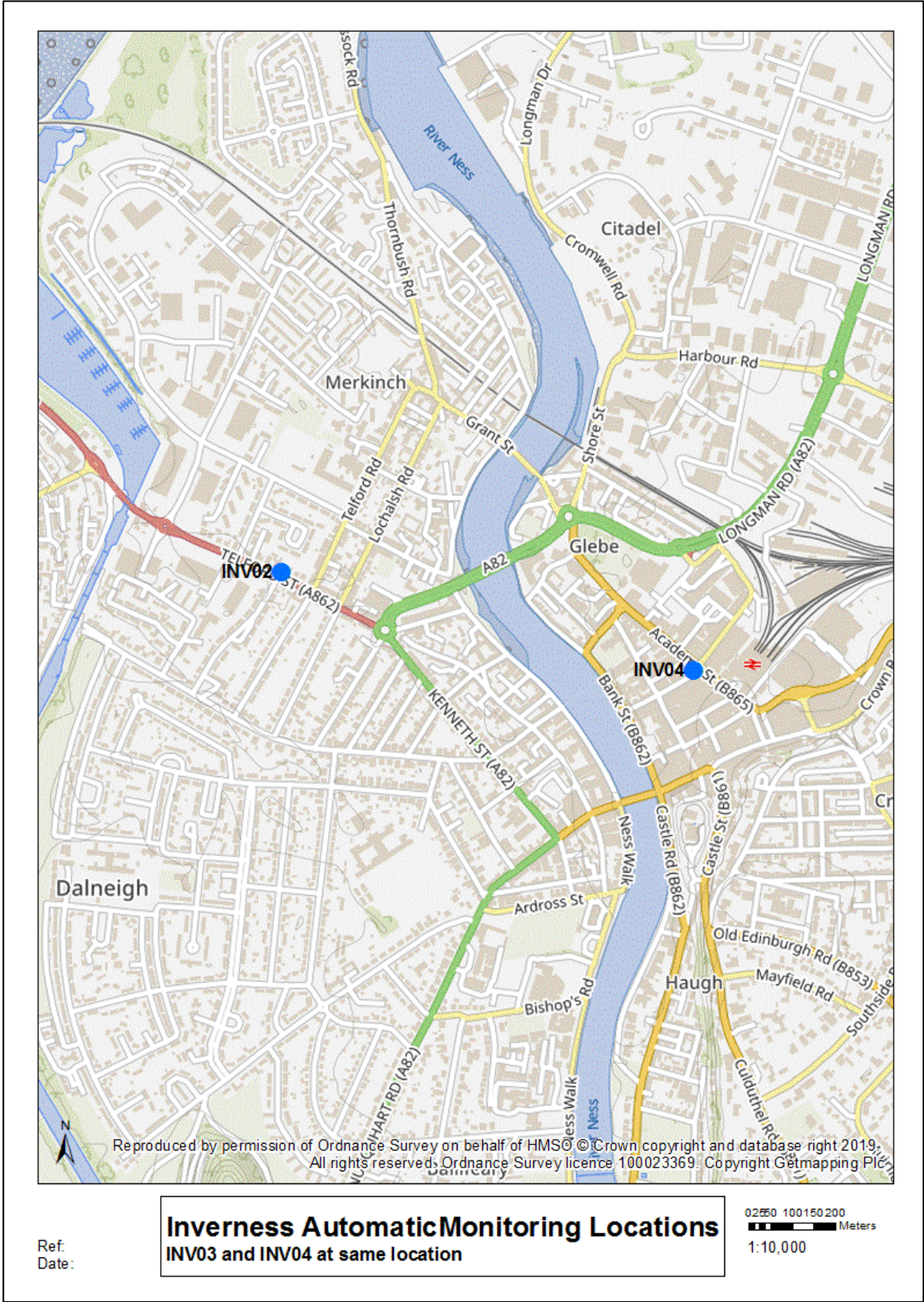


Figure A 4 Map of Inverness diffusion tube locations

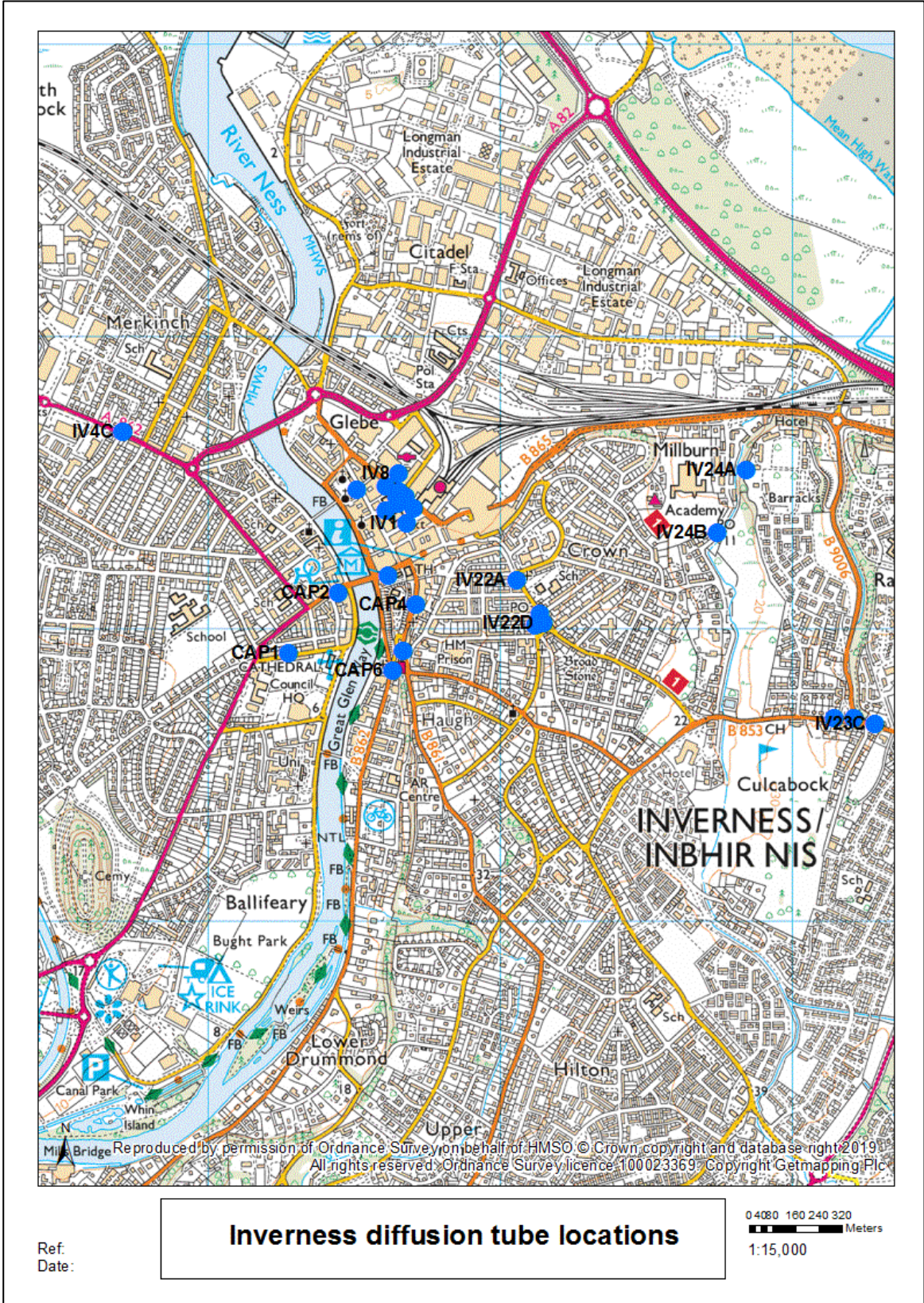


Figure A 5 Map of Inverness City Centre diffusion tube locations

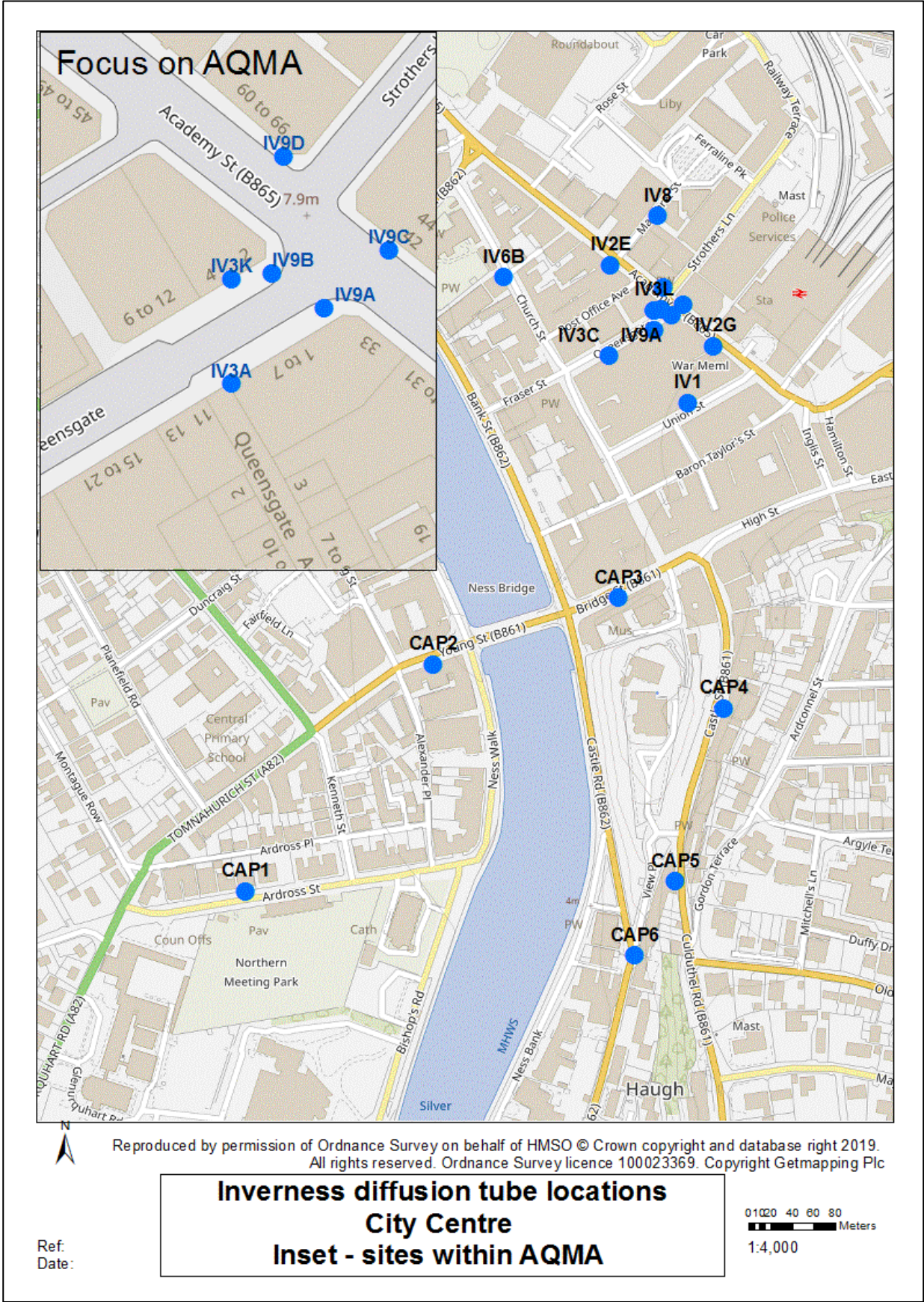


Figure A 6 Map of diffusion tube locations in Inverness (Crown)

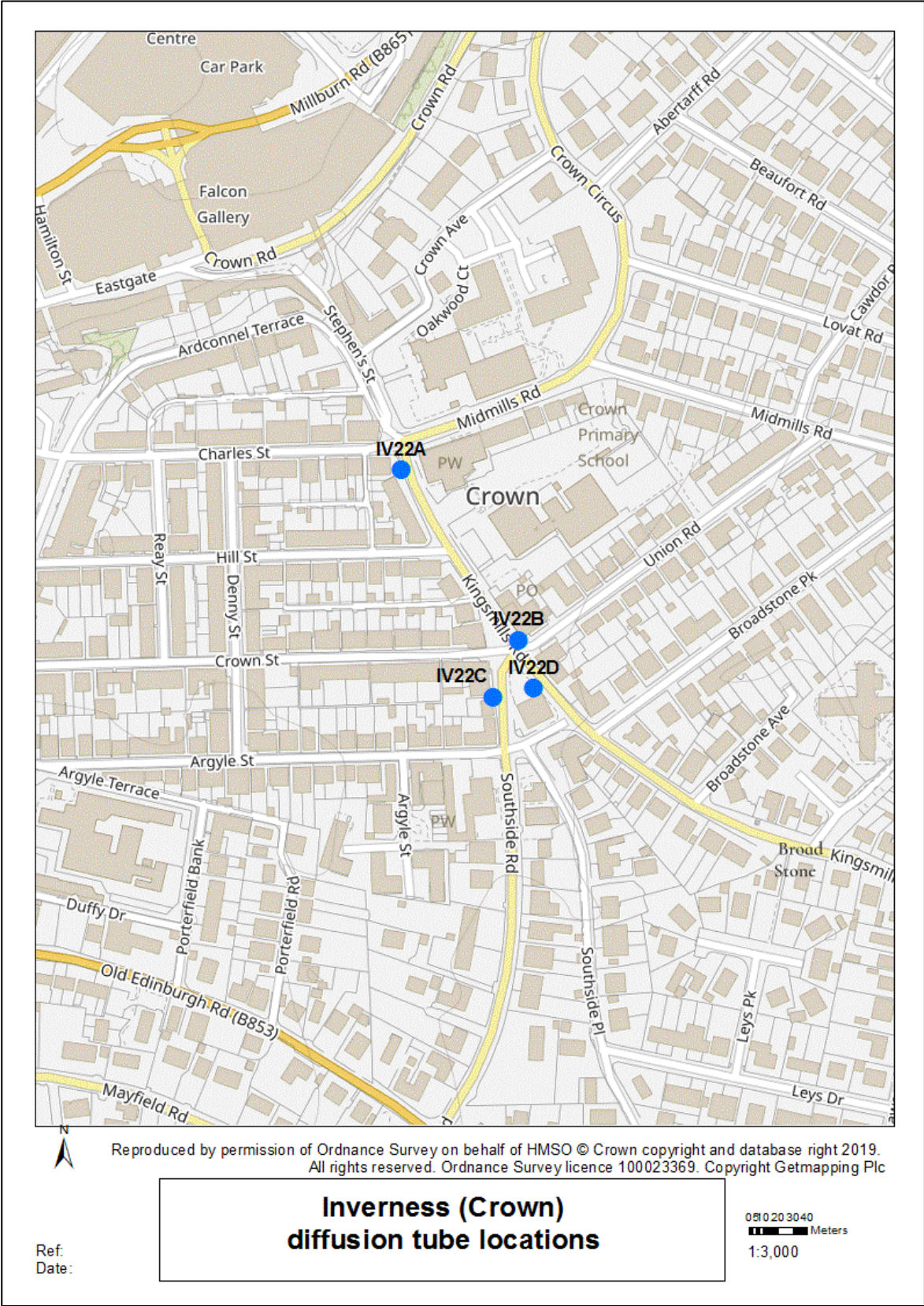


Figure A 7 Map of diffusion tube location in Inverness (Culcabock)

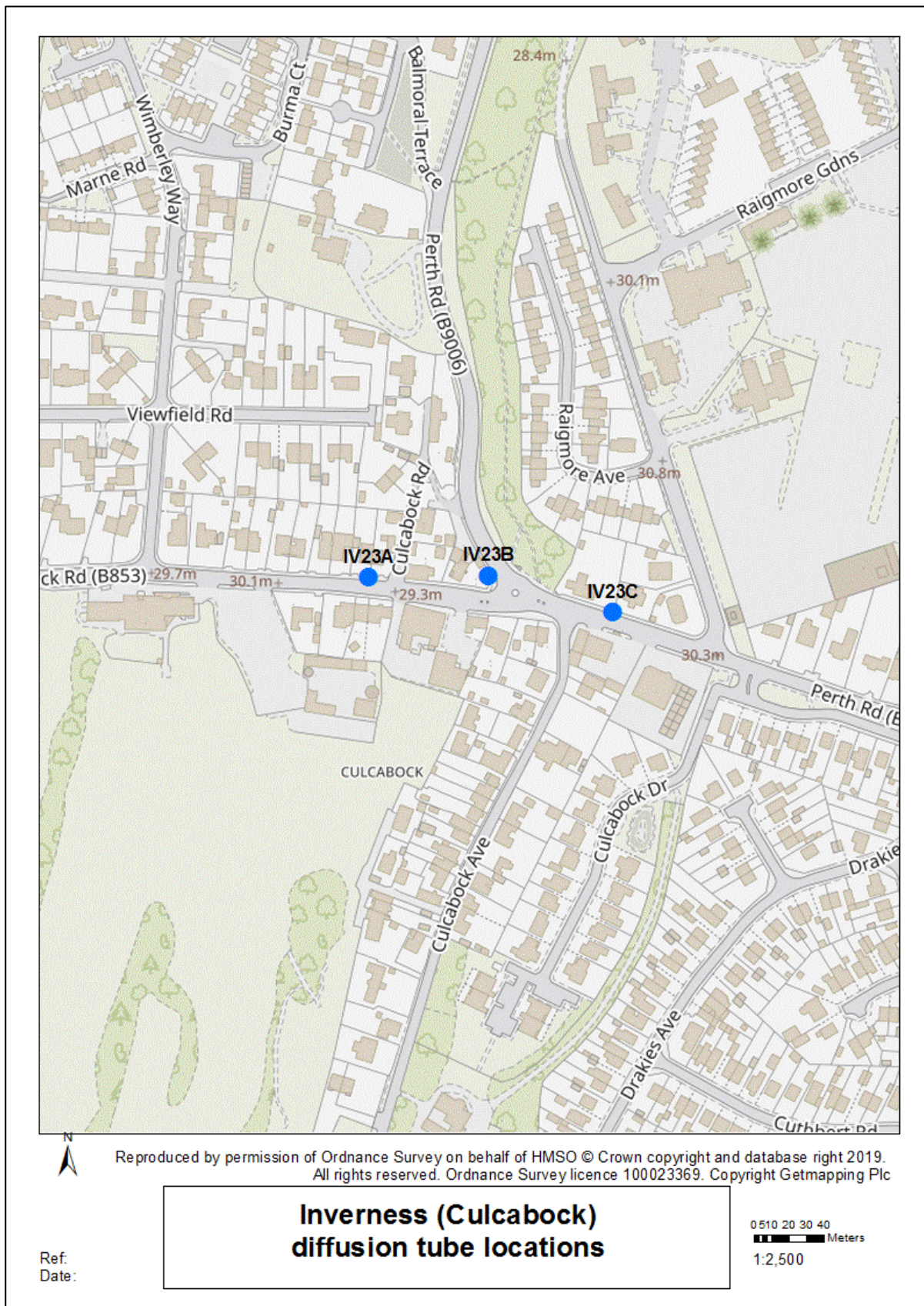


Figure A 8 Map of diffusion tube locations in Dingwall

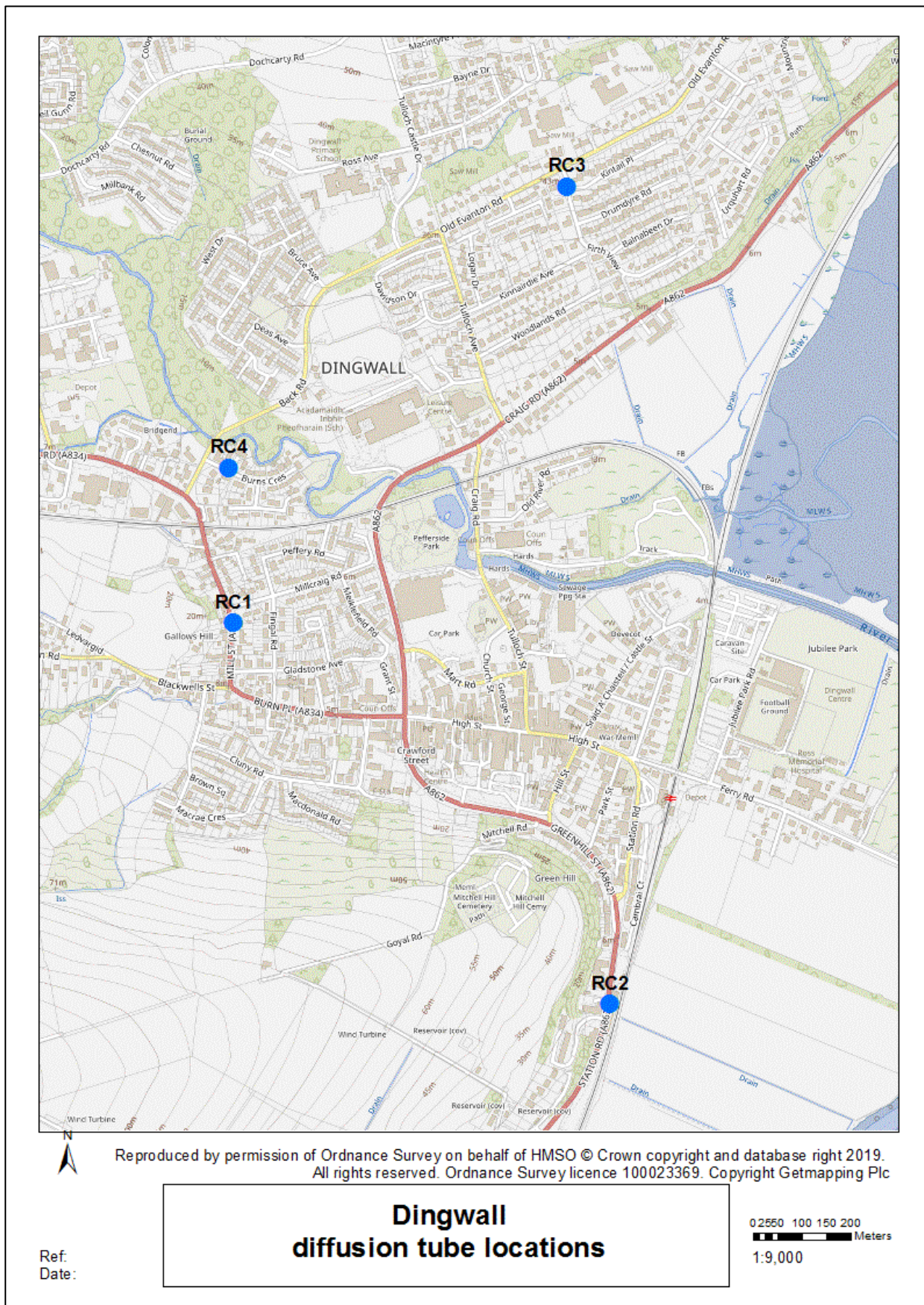


Figure A 9 Map of diffusion tube location in Fort William

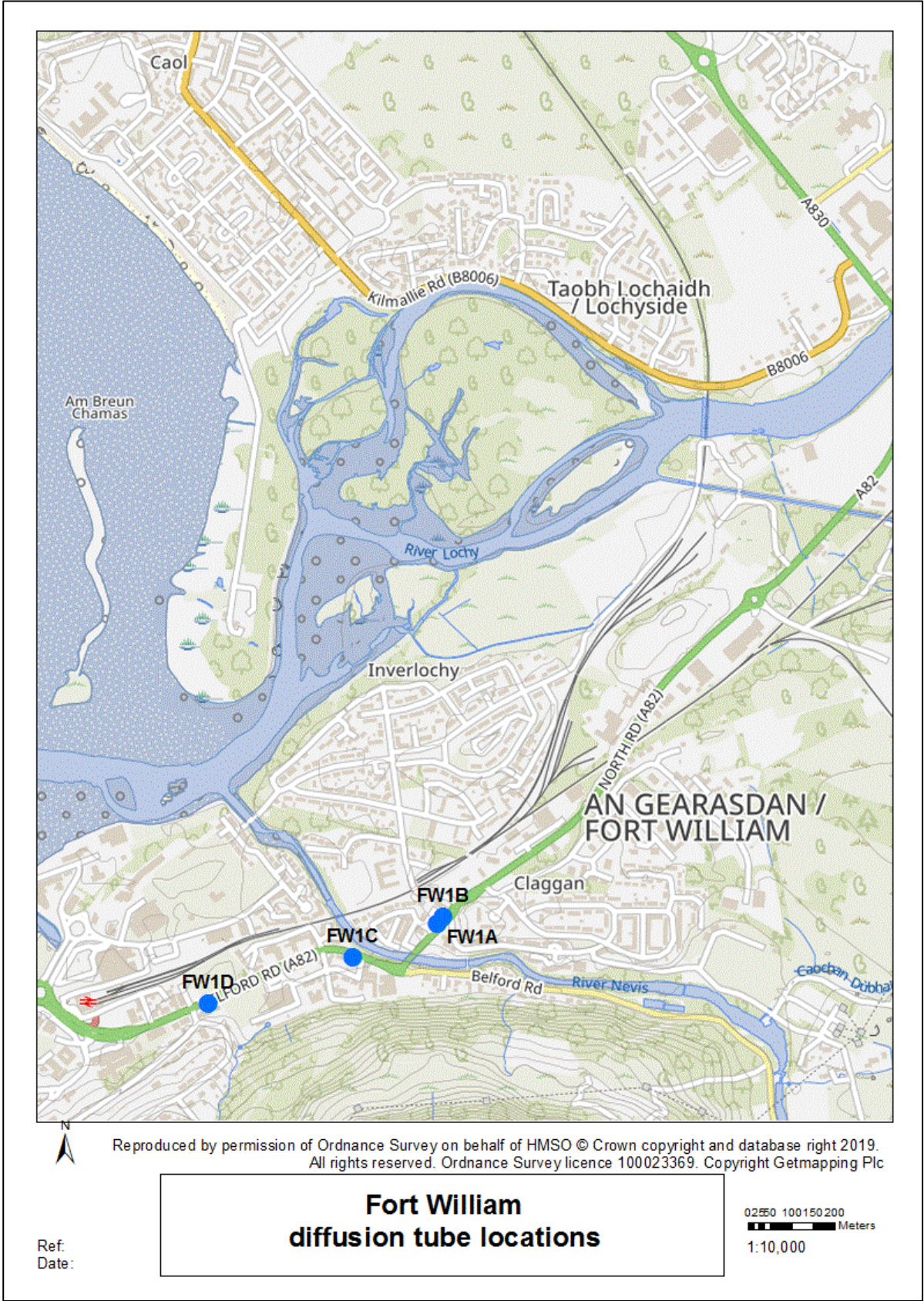
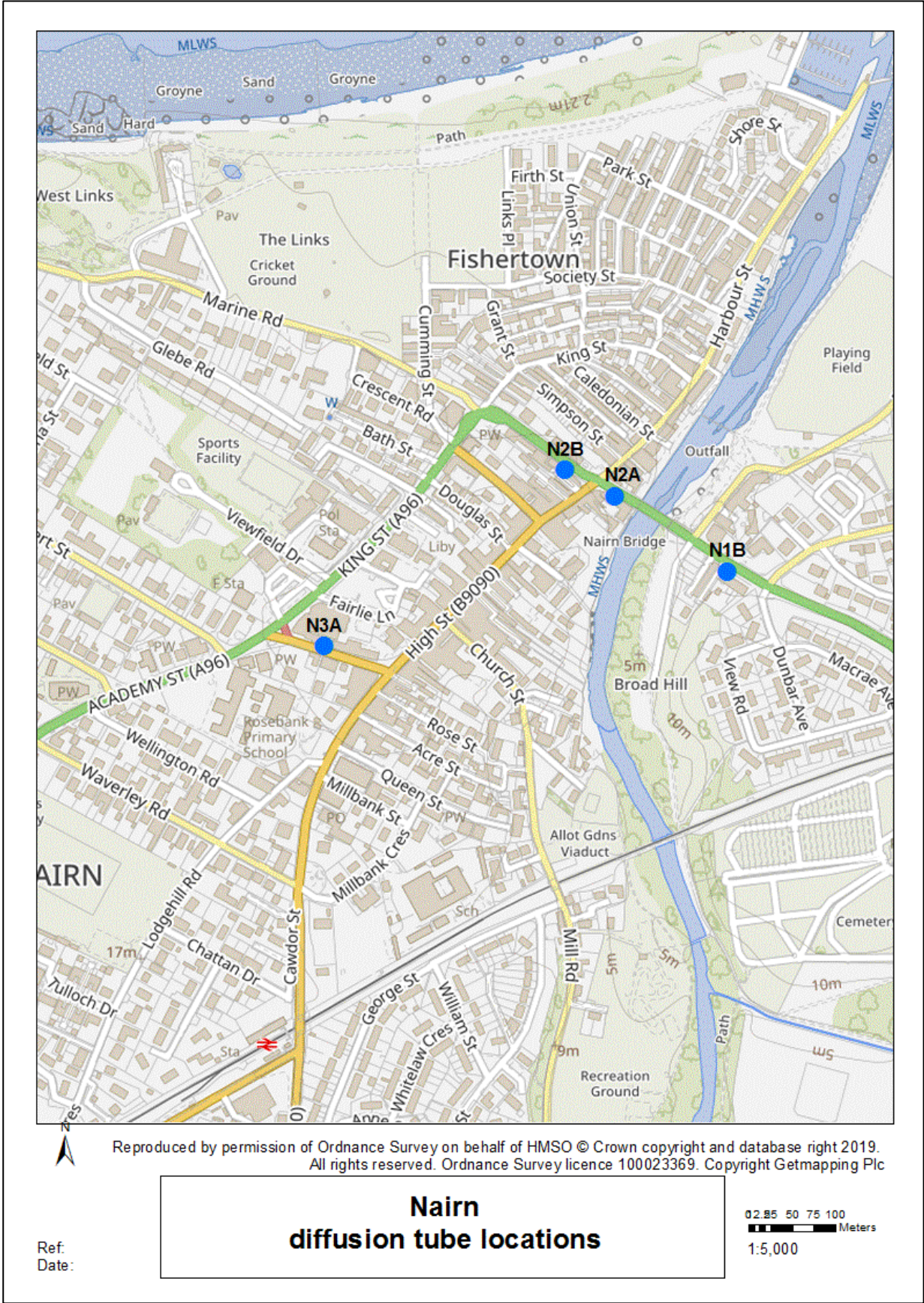


Figure A 10 Map of diffusion tube monitoring locations in Nairn



New Monitoring Site Details

Two new sites chosen because of concerns raised to the local member about traffic pollution associated with the school traffic for Millburn Academy, the largest of the Inverness secondary schools. the sites are on Diriebught Road, a relatively quiet residential street. The street is also the principal access for a Council depot and Millburn Academy, the latter generating a short period of increased traffic twice a day on school days:

IV24A – Suburban site on Diriebught Road, adjacent to some residential accommodation mounted to a lamp-post approximately 100m from the school entrance.

IV24B – Suburban site on Diriebught Road adjacent to the Millburn Academy school entrance.

Six new sites requested to investigate the impact on air quality from changed traffic conditions as a result of the Inverness Castle redevelopment project:

CAP1 – On Ardross Terrace, a city centre street adjacent to the Cathedral, the Northern Meeting Park, Highland Council Headquarters and Eden Court Theatre. The street is the site of coach parking used extensively by tourist coaches visiting the city centre. The topography of the street consists of a relatively wide single carriageway road. Mounted on a signpost adjacent to the carriageway.



CAP2 – On Young Street (B861), approach to city centre and Castle Street from the southwest across the Ness Bridge which crosses the River Ness at the east end of the street. The street is four lanes wide although one lane is allocated to on street parking. Buildings on the street are either 3-4 story traditional terraced mixed commercial/residential or 5 story modern office. The street is traffic light controlled at the east end and regularly has queuing traffic at peak times.



CAP3 – On Bridge Street (B861), which is on the east side of the River Ness connecting Ness Bridge with High Street pedestrian retail zone and Castlehill. Mix of Retail commercial and residential modern multi storey buildings. The street climbs towards the east and is intersected by two light controlled pedestrian crossings. The monitoring equipment is mounted on street furniture adjacent to the carriageway.



CAP4 – On Castle Street (B861), which climbs up to Castlehill. The street is bordered one side by traditional buildings occupied by small retail businesses, and on the other side by the Inverness Castle grounds, being redeveloped as a tourist destination from it's previous use as the Inverness Court. Monitoring equipment is mounted on street furniture adjacent to the bus stop on the uphill side of the street.



CAP5 – On Culduthel Road (B861), which climbs sharply away from the light controlled junction with Castle Street and View Place. A narrow street bordered by a public house and domestic housing. Monitoring equipment is mounted on a lamp post.



CAP6 – At the junction between View Place, Haugh Road (B862) and Castle Road (B862) at the foot of Castlehill. A narrow street bordered by domestic housing. Monitoring equipment is mounted on a lamp post



Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	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)
INV02	Inverness AURN	Roadside	265708	845668	Nitrogen dioxide, Fine Particles	No		NOx - Chemiluminescent, Particles – aerosol spectrometer	0	6	3
INV03	Inverness Academy Street Ground Floor	Roadside	266649	845446	Nitrogen dioxide	Yes	Inverness City Centre AQMA	Chemiluminescent	0	4	1.5
INV04	Inverness Academy Street First Floor	Roadside	266653	845439	Nitrogen dioxide	Yes	Inverness City Centre AQMA	Chemiluminescent	0	4	5
FW	Fort William AURN	Suburban	210849	774418	Nitrogen dioxide. Ozone	No		Chemiluminescent	0	50	3
SV	Strath Vaich AURN	Rural	234787	875022	Ozone	No		Chemiluminescent	n/a	n/a	3

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

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	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)
IV1	Union Street	Roadside	266681	845361	NO ₂	No	0.0	3.0	No	3.5
IV2E	Academy Street E	Roadside	266610	845487	NO ₂	No	0.0	1.0	No	2.0
IV2G	Academy Street G	Roadside	266704	845413	NO ₂	No	0.0	3.0	No	2.5
IV3A	Queensgate A	Roadside	266650	845428	NO ₂	Inverness City Centre AQMA	0.0	3.0	No	2.5
IV3C	Queensgate C	Roadside	266609	845404	NO ₂	No	0.0	3.0	No	2.5
IV3H, IV3K, IV3L	Queensgate L	Roadside	266650	845446	NO ₂	Inverness City Centre AQMA	0.0	5.0	Yes	1.5
IV4A, IV4B, IV4C	Inverness AURN C	Roadside	265710	845672	NO ₂	No	0.0	5.0	Yes	3.0
IV6B	Church Street B	Roadside	266513	845476	NO ₂	No	3.0	2.0	No	2.0

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	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)
IV8	Margaret Street	Roadside	266654	845532	NO ₂	No	0.0	1.0	No	2.0
IV9A	Inverness AQMA A	Kerbside	266657	845447	NO ₂	Inverness City Centre AQMA	3.0	0.5	No	2.0
IV9B	Inverness AQMA B	Kerbside	266666	845441	NO ₂	Inverness City Centre AQMA	5.0	0.5	No	2.0
IV9C	Inverness AQMA C	Roadside	266677	845451	NO ₂	Inverness City Centre AQMA	0.0	2.0	No	2.0
IV9D	Inverness AQMA D	Kerbside	266659	845467	NO ₂	Inverness City Centre AQMA	2.0	0.0	No	2.0
IV22A	Crown A	Roadside	267057	845167	NO ₂	No	10.0	1.0	No	2.5
IV22B	Crown B	Roadside	267137	845051	NO ₂	No	3.0	1.0	No	2.5
IV22C	Crown C	Roadside	267120	845012	NO ₂	No	4.0	1.0	No	2.5

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	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)
IV22D	Crown D	Roadside	267148	845018	NO ₂	No	5.0	1.0	No	2.5
IV23A	Culcabock A	Roadside	268146	844694	NO ₂	No	0.0	2.0	No	2.5
IV23B	Culcabock B	Roadside	268214	844695	NO ₂	No	4.0	1.0	No	2.5
IV23C	Culcabock C	Roadside	268285	844674	NO ₂	No	5.0	2.0	No	2.5
IV24A	Millburn A	Suburban	267844	845544	NO ₂	No	4.0	1.0	No	2.5
IV24B	Millburn B	Suburban	267743	845327	NO ₂	No	30.0	1.0	No	2.0
CAP1	Castle Project 1	Roadside	266277	844915	NO ₂	No	3.4	2.9	No	3.0
CAP2	Castle Project 2	Roadside	266448	845122	NO ₂	No	0.0	2.9	No	2.5

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	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)
CAP3	Castle Project 3	Roadside	266618	845183	NO ₂	No	3.4	1.0	No	3.0
CAP4	Castle Project 4	Roadside	266714	845082	NO ₂	No	2.4	2.9	No	2.5
CAP5	Castle Project 5	Roadside	266670	844924	NO ₂	No	0.0	1.5	No	2.5
CAP6	Castle Project 6	Roadside	266633	844856	NO ₂	No	1.0	1.0	No	3.0
FW1A	Fort William 1A	Roadside	211342	774369	NO ₂	No	5.0	1.0	No	2.5
FW1B	Fort William 1B	Roadside	211355	774386	NO ₂	No	0.0	6.0	No	3.0
FW1C	Fort William 1C	Roadside	211148	774294	NO ₂	No	6.0	2.0	No	2.5
FW1D	Fort William 1D	Roadside	210818	774188	NO ₂	No	10.0	2.0	No	2.5

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	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)
N1B	Nairn Boath Terrace	Roadside	288688	856543	NO ₂	No	4.0	3.0	No	3.0
N2A	Nairn Ashers Court	Roadside	288559	856629	NO ₂	No	0.0	2.6	No	2.5
N2B	Nairn St Ninian Road	Roadside	288503	856659	NO ₂	No	0.0	1.8	No	3.0
N3A	Nairn Leopold Street	Roadside	282228	856458	NO ₂	No	0.0	1.0	No	3.0
RC1	Dingwall Wyvis Terrace	Roadside	254429	858970	NO ₂	No	10.0	1.0	No	1.9
RC2	Dingwall Station Road	Roadside	255199	858189	NO ₂	No	0.0	1.5	No	1.9
RC3	Dingwall Kintail Place	Urban Background	255113	859863	NO ₂	No	0.0	2.0	No	1.9
RC4	Dingwall Burns Crescent	Urban Background	254419	859287	NO ₂	No	0.0	1.0	No	1.9

Notes:

- (1) 0m if the monitoring site is at a location of exposure (e.g. installed on/adjacent to 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 2024 (%) ⁽²⁾	2020	2021	2022	2023	2024
INV02	265708	845668	Roadside	97	97	13	14	13	12	11
INV03	266649	845446	Roadside	100	100	28	29	29	20	18
INV04	266653	845439	Roadside	99	99	23	28	24	21	15
FW	210849	774418	Suburban	89	89	5	6	7	7	6

Notes:

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

NO₂ annual means exceeding 60 µg/m³, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.

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

(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 (%) ⁽¹⁾	Valid Data Capture 2024 (%) ⁽²⁾	2020	2021	2022	2023	2024
IV1	266681	845361	Roadside	100.0	100.0	14.9		19.9	15.8	13.3
IV2E	266610	845487	Roadside	81.1	81.1	21.3	30.1	27.8	23.5	21.2
IV2G	266704	845413	Roadside	100.0	100.0	22.1	29.6	27.6	24.6	22.4
IV3A	266650	845428	Roadside	90.6	90.6	22.2	28.7	25.8	21.1	18.9
IV3C	266609	845404	Roadside	100.0	100.0	18.8	24.3	22.2	19.3	16.2
IV3H, IV3K, IV3L	266650	845446	Roadside	100.0	100.0	28.4	25.1	23.4	18.3	15.5
IV4A, IV4B, IV4C	265710	845672	Roadside	100.0	100.0	13.3	14.7	14.6	13.1	11.9
IV6B	266513	845476	Roadside	100.0	100.0	11.2	14.3	12.7	11.7	10.0
IV8	266654	845532	Roadside	100.0	100.0	13.3	17.6	15.7	14.6	10.9
IV9A	266657	845447	Kerbside	100.0	100.0	27.1	33.7	31.0	24.7	21.5
IV9B	266666	845441	Kerbside	100.0	100.0	21.5	27.8	25.6	20.6	17.6

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2024 (%) ⁽²⁾	2020	2021	2022	2023	2024
IV9C	266677	845451	Roadside	84.9	84.9	22.9	33.7	28.0	25.2	21.2
IV9D	266659	845467	Kerbside	90.6	90.6	18.9	25.7	23.7	21.5	18.8
IV22A	267057	845167	Roadside	100.0	100.0				11.3	9.8
IV22B	267137	845051	Roadside	100.0	100.0				10.8	9.4
IV22C	267120	845012	Roadside	100.0	100.0				9.5	8.9
IV22D	267148	845018	Roadside	100.0	100.0				9.4	7.6
IV23A	268146	844694	Roadside	92.5	92.5				15.1	12.1
IV23B	268214	844695	Roadside	92.5	92.5				16.1	13.9
IV23C	268285	844674	Roadside	100.0	100.0				21.6	17.7
IV24A	267844	845544	Suburban	17.0	17.0					9.5
IV24B	267743	845327	Suburban	9.4	9.4					7.3

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2024 (%) ⁽²⁾	2020	2021	2022	2023	2024
CAP1	266277	844915	Roadside	17.0	17.0					6.8
CAP2	266448	845122	Roadside	17.0	17.0					18.1
CAP3	266618	845183	Roadside	17.0	17.0					18.1
CAP4	266714	845082	Roadside	17.0	17.0					13.9
CAP5	266670	844924	Roadside	17.0	17.0					21.7
CAP6	266633	844856	Roadside	17.0	17.0					9.7
FW1A	211342	774369	Roadside	100.0	100.0	13.9	16.4	16.2	15.8	14.5
FW1B	211355	774386	Roadside	100.0	100.0	12.4	14.5	13.7	13.5	12.1
FW1C	211148	774294	Roadside	100.0	100.0	14.1	16.1	15.6	16.3	14.6
FW1D	210818	774188	Roadside	100.0	100.0	13.9	16.6	16.0	15.0	13.8
N1B	288688	856543	Roadside	100.0	100.0	15.6	17.2	17.7	17.3	14.6

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2024 (%) ⁽²⁾	2020	2021	2022	2023	2024
N2A	288559	856629	Roadside	100.0	100.0	20.4	20.1	21.1	19.1	17.5
N2B	288503	856659	Roadside	100.0	100.0	28.1	27.9	28.5	26.3	22.3
N3A	282228	856458	Roadside	83.0	83.0				12.2	10.2
RC1	254429	858970	Roadside	17.0	17.0	14.6	14.0	11.9	13.6	17.7
RC2	255199	858189	Roadside	100.0	100.0	20.9	19.2	20.3	19.7	18.0
RC3	255113	859863	Urban Background	100.0	100.0	5.9	5.3	5.1	4.6	4.6
RC4	254419	859287	Urban Background	100.0	100.0	7.0	6.6	6.6	5.8	5.6

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

☒ Diffusion tube data has been bias adjusted.

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

Notes:

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

NO₂ annual means exceeding 60 µg/m³, indicating a potential exceedance of the NO₂ 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.TG(22) 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%).

Table A.5 – 1-Hour Mean NO₂ Monitoring Results, Number of 1-Hour Means > 200 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 2024 (%) ⁽²⁾	2020	2021	2022	2023	2024
INV02	265708	845668	Roadside	97	97	0	0	0	0	0
INV03	266649	845446	Roadside	100	100	0	0	0 (102)	0	0
INV04	266653	845439	Roadside	99	99	0	0 (96)	0 (89)	0 (78)	0
FW	210849	774418	Suburban	89	89	0	0	0	0	0

Notes:

Exceedances of the NO₂ 1-hour mean objective (200 µg/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%).

Monitoring Data Trends

Figure A11 is a graphical representation of the trend in nitrogen dioxide at automatic site IV3 from 2016 to 2024. The reducing trend in nitrogen dioxide levels over the last four years continued into 2024. The site showing the largest year on year reduction (28%) was INV04, Inverness Academy Street First Floor. Site INV02, Inverness AURN showed the smallest reduction (10%).

Figure A12 is a graphical representation of the nitrogen dioxide trend at non-automatic sites within the AQMA.

Annual mean particle concentrations, both as PM₁₀ and PM_{2.5} have not shown either a reducing or increasing trend over the past five years.

Figure A 11 Trend Graph - AQMA automatic

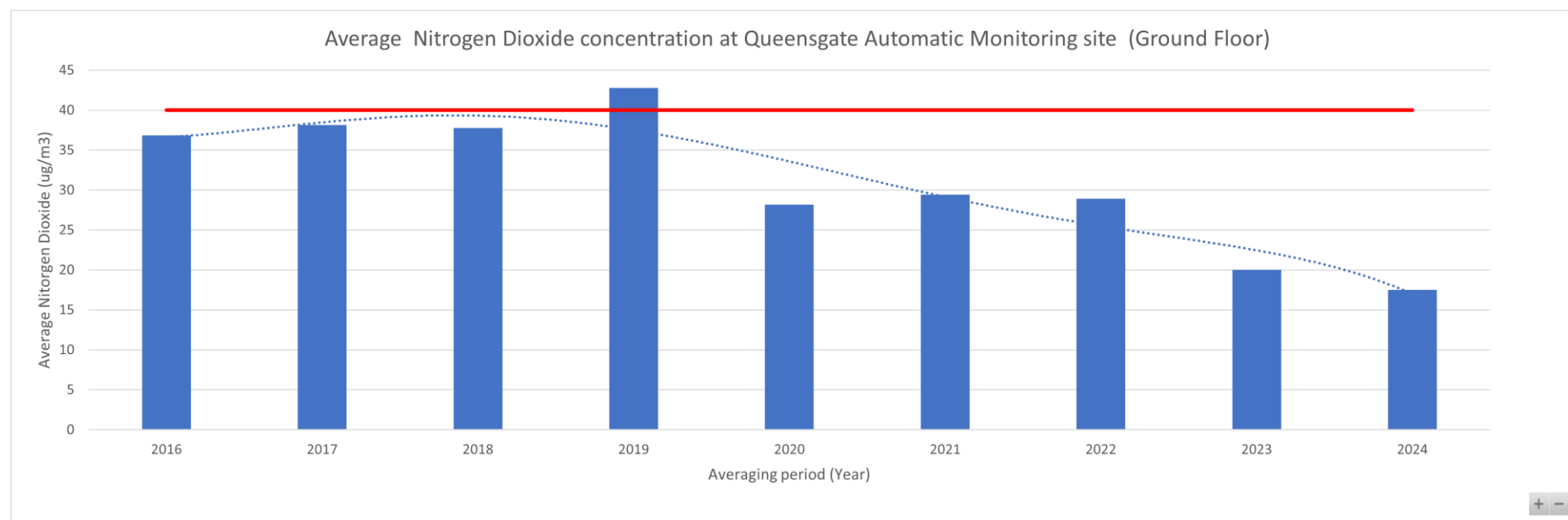


Figure A 12 Nitrogen Dioxide Trend Graph - AQMA non-automatic

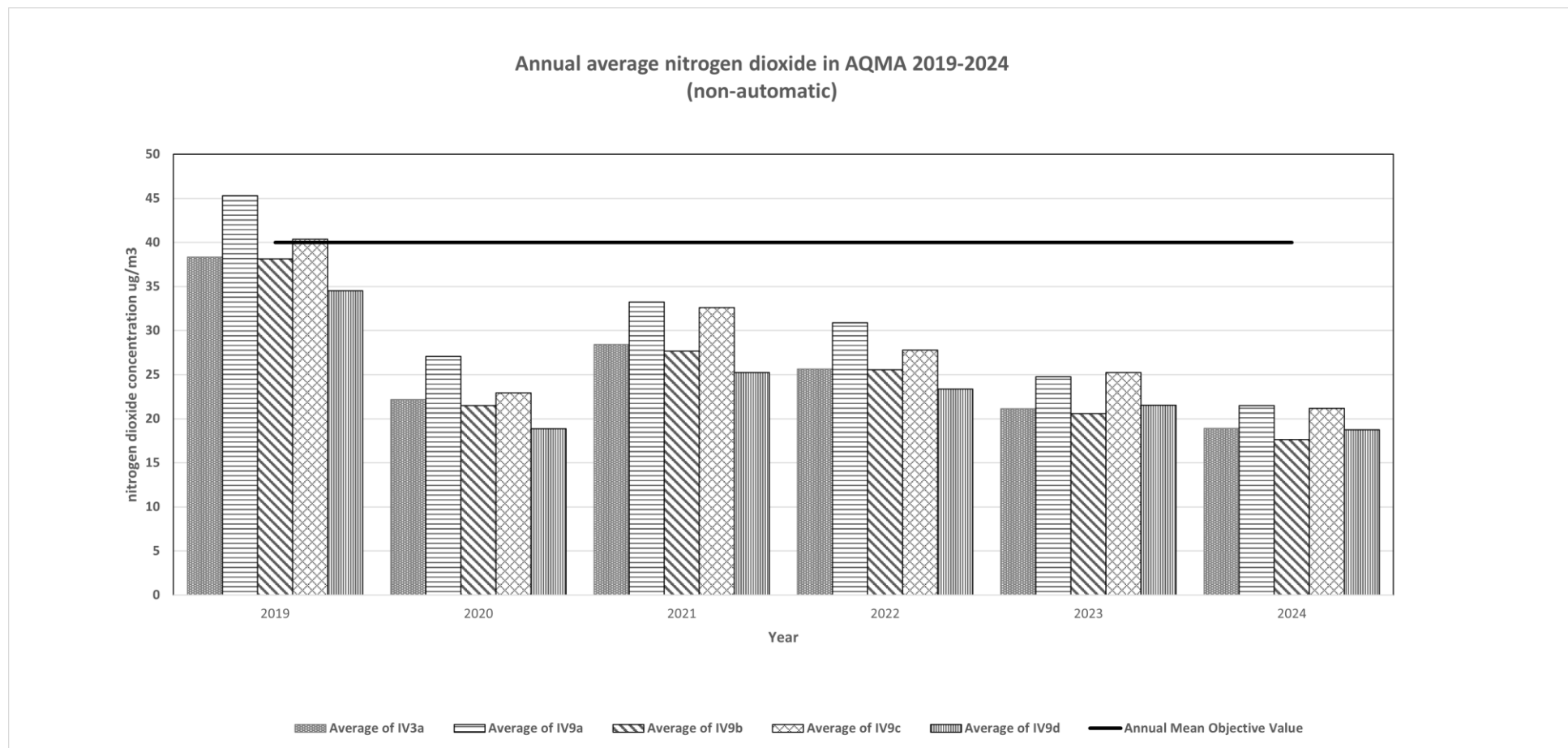


Table A.6 – Annual Mean PM₁₀ Monitoring Results (µg/m³)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2024 (%) ⁽²⁾	2020	2021	2022	2023	2024
INV02	265708	845668	Roadside	100	100	8	9	9	9	8

Notes:

Exceedances of the PM₁₀ annual mean objective of 18 µg/m³ are shown in bold.

All means have been “annualised” as per LAQM.TG(22), 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%).

Table A.7 – 24-Hour Mean PM₁₀ Monitoring Results, Number of PM₁₀ 24-Hour Means > 50 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 2024 (%) ⁽²⁾	2020	2021	2022	2023	2024
INV02	265708	845668	Roadside	100	100	0	0	0	0	0

Notes:

Exceedances of the PM₁₀ 24-hour mean objective (50 µg/m³ not to be exceeded more than seven times/year) are shown in bold.

If the period of valid data is less than 85%, the 98.1st 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%).

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 2024 (%) ⁽²⁾	2020	2021	2022	2023	2024
INV02	265708	845668	Roadside	100	100	4	5	5	5	4

Notes:

Exceedances of the PM_{2.5} annual mean objective of 10 µg/m³ are shown in bold.

All means have been “annualised” as per LAQM.TG(22), 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%).

Appendix B: Full Monthly Diffusion Tube Results for 2024

Table B.1 – NO₂ 2024 Monthly Diffusion Tube Results (µg/m³)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.82)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
IV1	266681	845361	12.5	18.5	28.1	19.7	21.8	12.0	13.8	8.2	18.4	15.9	13.2	12.2	16.2	13.3		
IV2E	266610	845487	27.6		33.0	26.1		21.1	20.1	21.8	25.0	27.3	29.0	27.6	25.9	21.2		
IV2G	266704	845413	28.0	30.7	37.0	29.1	30.1	23.2	23.5	20.3	27.1	24.6	27.7	26.6	27.3	22.4		
IV3A	266650	845428	23.4		36.2	23.1	25.8	18.4	16.7	18.7	22.7	23.7	23.7	21.3	23.0	18.9		
IV3C	266609	845404	20.2	24.5	29.4	20.9	23.8	14.9	15.6	14.5	21.5	20.3	13.3	18.5	19.8	16.2		

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.82)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
IV3H	266650	845446	17.7	23.0	28.5	19.7	22.6	15.3	15.5	12.1	20.6	19.5	17.9	17.1	-	-		Triplicate Site with IV3H, IV3K and IV3L - Annual data provided for IV3L only
IV3K	266650	845446	17.9	22.6	27.6	21.8	22.4	16.2	15.3	11.9	20.3	19.6	16.1	17.3	-	-		Triplicate Site with IV3H, IV3K and IV3L - Annual data provided for IV3L only
IV3L	266650	845446	18.4	22.9	27.6	20.7	10.8	16.3	16.4	12.4	20.6	18.7	18.2	17.4	18.9	15.5		Triplicate Site with IV3H, IV3K and IV3L - Annual data provided for IV3L only
IV4A	265710	845672	20.6	18.7	16.0	10.5	11.1	10.9	9.3	11.2	12.4	16.3	20.9	15.3	-	-		Triplicate Site with IV4A, IV4B and IV4C - Annual data provided for IV4C only
IV4B	265710	845672	21.2	19.1	16.8	11.6	11.1	10.7	8.9	11.0	11.9	15.2	21.9	17.7	-	-		Triplicate Site with IV4A, IV4B and IV4C - Annual data provided for IV4C only
IV4C	265710	845672	21.1	18.6	15.9	11.4	11.1	10.1	8.8	10.7	12.3	16.2	21.2	16.8	14.6	11.9		Triplicate Site with IV4A, IV4B and IV4C - Annual data provided for IV4C only

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.82)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
IV6B	266513	845476	12.2	14.8	18.6	12.1	13.5	9.0	9.4	7.8	12.2	13.9	12.8	9.9	12.2	10.0		
IV8	266654	845532	10.3	18.4	19.4	13.2	15.1	9.0	9.7	9.3	14.7	15.8	15.3	9.1	13.3	10.9		
IV9A	266657	845447	27.0	29.7	33.2	28.3	28.1	22.5	22.3	21.6	23.7	26.3	26.3	25.7	26.2	21.5		
IV9B	266666	845441	19.7	22.6	30.3	21.8	23.8	19.0	19.1	15.3	23.3	22.5	22.1	18.7	21.5	17.6		
IV9C	266677	845451	23.3	30.3			34.9	21.6	23.8	17.5	28.5	26.9	26.7	24.9	25.8	21.2		
IV9D	266659	845467	20.0	26.4	33.7	24.3	28.9	18.8	18.9	12.4	23.3		23.9	21.1	22.9	18.8		
IV22A	267057	845167	14.7	14.3	15.4	11.7	10.8	8.5	7.3	7.1	10.9	13.4	15.3	13.6	11.9	9.8		

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.82)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
IV22B	267137	845051	13.1	13.6	15.9	12.0	11.7	7.8	8.2	6.1	10.9	12.0	13.8	11.9	11.4	9.4		
IV22C	267120	845012	13.9	14.2	13.1	10.2	9.7	7.9	6.8	6.1	10.2	12.4	14.4	11.6	10.9	8.9		
IV22D	267148	845018	13.1	12.6	11.9	9.1	8.7	0.7	5.5	5.8	8.3	10.6	13.0	11.4	9.2	7.6		
IV23A	268146	844694	17.4	17.7	18.2	13.9	13.6	12.0		8.2	14.6	15.4	17.2	14.6	14.8	12.1		
IV23B	268214	844695	19.1	20.3	20.6	16.3	17.5	11.0	13.5	11.1		18.9	21.6	16.9	17.0	13.9		
IV23C	268285	844674	26.8	22.9	25.4	18.9	22.3	20.4	15.7	15.0	22.4	29.0	19.0	22.0	21.6	17.7		
IV24A	267844	845544											12.3	10.9	11.6	9.5		New monitoring site with insufficient data to perform annualisation

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.82)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
IV24B	267743	845327												8.9	8.9	7.3		New monitoring site with insufficient data to perform annualisation
CAP1	266277	844915											10.0	6.7	8.3	6.8		New monitoring site with insufficient data to perform annualisation
CAP2	266448	845122											22.1	22.1	22.1	18.1		New monitoring site with insufficient data to perform annualisation
CAP3	266618	845183											22.7	21.5	22.1	18.1		New monitoring site with insufficient data to perform annualisation
CAP4	266714	845082											18.4	15.5	17.0	13.9		New monitoring site with insufficient data to perform annualisation

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.82)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
CAP5	266670	844924											28.9	24.0	26.4	21.7		New monitoring site with insufficient data to perform annualisation
CAP6	266633	844856											13.1	10.5	11.8	9.7		New monitoring site with insufficient data to perform annualisation
FW1A	211342	774369	19.3	21.0	19.5	16.9	17.6	10.9	10.4	12.8	18.6	24.8	20.4	20.0	17.7	14.5		
FW1B	211355	774386	16.2	15.7	14.1	14.4	16.6	12.5	12.6	11.5	16.5	14.4	16.9	15.8	14.8	12.1		
FW1C	211148	774294	18.4	20.1	17.6	18.0	20.5	15.5	14.9	15.2	18.8	14.8	21.2	18.3	17.8	14.6		
FW1D	210818	774188	18.2	18.9	16.0	16.8	18.3	14.3	14.2	14.4	18.0	15.2	19.9	17.5	16.8	13.8		

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.82)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
N1B	288688	856543	23.7	24.2	17.5	16.0	16.5	11.9	13.0	15.0	17.4	19.0	20.4	19.5	17.8	14.6		
N2A	288559	856629	27.6	27.3	17.8	18.9	18.5	18.4	15.6	22.6	19.8	22.9	23.7	23.4	21.4	17.5		
N2B	288503	856659	32.0	33.9	25.5	22.2	25.9	23.4	22.8	25.3	26.3	26.7	32.8	30.0	27.2	22.3		
N3A	282228	856458	12.4	15.7	16.2	12.3	14.8	9.8	9.9	6.7			13.9	13.1	12.5	10.2		
RC1	254429	858970	24.1	19.1											21.6	17.7		Site subject to persistent tube theft. Insufficient data to perform annualisation
RC2	255199	858189	26.9	25.2	22.4	20.3	21.5	17.6	17.1	15.1	21.4	23.6	24.2	28.5	22.0	18.0		
RC3	255113	859863	9.5	8.1	5.9	3.4	4.5	2.4	2.4	2.5	3.7	6.0	8.2	10.5	5.6	4.6		

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.82)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
RC4	254419	859287	11.8	9.7	6.9	4.2	5.2	3.5	3.3	3.5	4.8	6.2	9.5	13.2	6.8	5.6		

- ☒ 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 LAQM.TG22.
- ☒ Local bias adjustment factor used.
- ☐ National bias adjustment factor used.
- ☐ Where applicable, data has been distance corrected for relevant exposure in the final column.
- ☒ The Highland Council confirm that all 2024 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.

Notes:

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

NO₂ annual means exceeding 60 µg/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 The Highland Council During 2024

The following new sources were identified in 2024:

49kW biomass boiler for a dwelling in Strathpeffer, Ross-shire (planning reference 24/01445/FUL).

The biomass development was screened using the methods described in LAQM.TG22 and found to be not significant in terms of impacts upon air quality.

Additional Air Quality Works Undertaken by The Highland Council During 2024

Funding provided by the Scottish Government in June 2024 allowed the Highland Council to carry out an air quality monitoring and awareness raising projects at six Inverness primary schools in 2024. This follows similar projects in recent years which are reported in previous Annual Progress Reports from 2022 and 2023. In total 22 Highland Primary Schools have had air quality monitoring studies and awareness raising presentations since 2021.

The monitoring included a combination of five NO₂ passive diffusion tubes at each school changed monthly over a four-month period, and live Earthsense 'Zephyr®' monitoring of multiple parameters over a few weeks at each site.

Further information concerning the study is included in Appendix D including the diffusion tube monitoring location information, the annualised and bias adjusted Annual Mean NO₂ diffusion tube results, and the full monthly NO₂ diffusion tube results.

QA/QC of Diffusion Tube Monitoring

Diffusion tubes used in the surveys reported in this document were supplied by Gradko International Ltd. The method of preparation is 20% TEA in water. Analysis of the NO₂ diffusion tubes is carried out using ion chromatography techniques in accordance with Gradko International Ltd U.K.A.S. accredited (ISO/IEC 17025) internal laboratory procedure GLM 7, which is a recommended UV spectrophotometric method. Reporting of the NO₂ analysis results is sent to electronically to each authority in PDF format or if requested EXCEL format. The report is issued within 10 working days from receipt of the exposed diffusion tubes to the Gradko Laboratory.

Quality Assurance: The laboratory has a fully documented Quality Management System, which has been assessed and accredited by U.K.A.S. (Accreditation No. 2187). A copy of the Quality Manual Contents Index is available on request.

Quality Control Procedures: All tube components are maintained in a high state of cleanliness. New absorbent is prepared by the Laboratory and checked for levels of nitrogen dioxide.

The diffusion tubes are prepared in a dedicated clean laboratory and stored under refrigerated conditions to maintain stability. A sample of each batch of tubes prepared is checked by the analyst for blank levels. If the tubes are stored for more than one week, a further sample is taken and checked for any increases in blank levels. If the levels reach a pre-determined value, the batch of tubes is discarded.

Analytical Quality Control Procedures are implemented by the use of internal standards checks using certified standards from two different sources, and the use of external proficiency schemes such as AIR/PT Scheme.

AIR is an independent analytical proficiency-testing (PT) scheme, operated by LGC Standards and supported by the Health and Safety Laboratory (HSL). AIR PT is a new scheme, started in April 2014, which combined two long running PT schemes: LGC Standards STACKS PT scheme and HSL WASP PT scheme. The rounds covering the 2024 monitoring year are 62 to 66, details of which can be found at:

<https://laqm.defra.gov.uk/air-quality/air-quality-assessment/qa-qc-framework/>

100% of submissions in these rounds were satisfactory.

Tube Exposure Procedure

The Highland Council exposes diffusion tubes according to the method described in “Passive Diffusion Air Monitors – Instruction Manual for Exposure and Location” by Gradko International Ltd. Guidance is also found in “Diffusion Tubes for Ambient NO₂ Monitoring: Practical Guidance” by AEA for DEFRA. Tubes are exposed to the DEFRA calendar <https://laqm.defra.gov.uk/air-quality/air-quality-assessment/diffusion-tube-monitoring-calendar/>

Diffusion Tube Annualisation

The majority of diffusion tube monitoring locations within The Highland Council recorded data capture of more than 75%. Eight of the sites were new and had less than 25% data capture. It was therefore not required to annualise any monitoring data.

Diffusion Tube Bias Adjustment Factors

The Highland Council have applied a local bias adjustment factor of 0.82 to the 2024 monitoring data. A summary of bias adjustment factors used by The Highland Council over the past five years is presented in Table C.1. Two sites were used to provide local co-location studies. The AURN site INV02, at Telford Street, Inverness, and the Local Authority site INV03, at Queensgate, Inverness. The local bias was calculated using the Diffusion Tube Data Processing Tool v5.4. The method is that described in paragraph 7.222 of LAQM-TG22 Local Air quality Management – Technical Guidance. The outputs from the calculation are included in Table C.2.

Table C.1 – Bias Adjustment Factor

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2024	Local	-	0.82
2023	Local	-	0.81
2022	National	03/23	0.83
2021	Local	-	0.82
2020	Local and National	09/21	0.7 local and 0.81 national

NO₂ Fall-off with Distance from the Road

No diffusion tube NO₂ monitoring locations within The Highland Council required distance correction during 2024.

QA/QC of Automatic Monitoring

The AURN sites in Highland are operated for DEFRA by Bureau Veritas with QA/QC provided by Ricardo E and E. Local site operator is The Highland Council for all sites.

INV03 and INV04 are operated by The Highland Council as part of the Scottish Air Quality Database (SAQD). QA/QC and data management for the SAQD is provided by Ricardo E and E.

Sites are subject to six monthly audit and service visits. LSO calibration visits are carried out fortnightly for all sites other than Fort William and Strath Vaich, which are four weekly and quarterly.

All data reported in this document is ratified.

Live and historical data is available at <http://www.scottishairquality.scot/data/>

PM₁₀ and PM_{2.5} Monitoring Adjustment

The type of PM₁₀/PM_{2.5} monitor utilised within The Highland Council do not require the application of a correction factor.

Automatic Monitoring Annualisation

All automatic monitoring locations within The Highland Council recorded data capture of greater than 75% therefore it was not required to annualise any monitoring data. In addition, any sites with a data capture below 25% do not require annualisation.

NO₂ Fall-off with Distance from the Road

No automatic NO₂ monitoring locations within The Highland Council required distance correction during 2024.

Table C. 2 Bias Adjustment Calculations

	Local Bias Adjustment Input 1	Local Bias Adjustment Input 2
Periods used to calculate bias	11	11
Bias Factor A	0.92 (0.86 - 0.98)	0.74 (0.69 - 0.8)
Bias Factor B	9% (2% - 16%)	35% (26% - 45%)
Diffusion Tube Mean ($\mu\text{g}/\text{m}^3$)	18.9	14.8
Mean CV (Precision)	2.7%	3.2%
Automatic Mean ($\mu\text{g}/\text{m}^3$)	17.4	10.9
Data Capture	99%	99%
Adjusted Tube Mean ($\mu\text{g}/\text{m}^3$)	17(16-18)	11(10-12)

Notes: A combined local bias adjustment factor of 0.82 has been used to bias adjust the 2024 diffusion tube results.

Appendix D: Primary School Awareness Raising Project

Funding provided by the Scottish Government in April 2023 allowed The Highland Council to carry out an air quality monitoring and awareness raising project at six Highland primary schools in academic year 2024/25 listed in Table D.1.

The monitoring included a combination of five NO₂ passive diffusion tubes at each school changed monthly over a four-month period, and live Earthsense Zephyr[®] monitoring of multiple parameters over a few weeks at each site.

In total 30 passive diffusion tube sites were deployed as part of the monitoring and awareness raising project. Maps showing the location of the monitoring sites are provided at the end of this appendix. Further details on Quality Assurance/Quality Control (QA/QC) and bias adjustment for the diffusion tubes are included below.

The schools were selected on the basis of their urban classification and proximity to A and B roads. The monitoring locations were selected to use current street furniture in closest proximity to school drop off zones or known idling zones.

The diffusion tube monitoring results were adjusted where possible to annual average (AA). The location of each diffusion tube is reported in Table D.2, the Annual Mean results are reported in Table D.3 and the monthly results are reported in Table D.4.

There were no exceedances of the air quality objectives at any of the sites where monitoring was undertaken as part of the Primary School Awareness Raising Project.

The data from the Zephyr[®] indicated raw data peaks in NO₂ coinciding with drop off and pick up times (9am/3pm) at some locations. The Zephyr[®] monitors are considered a useful tool to demonstrate the indicative concentrations of NO₂ present during daily cycles, however as they are not the subject of regular calibration, the results are not reported here.

The awareness raising element was undertaken through delivery of a project talk to pupils (Second Stage) in participating schools, delivery of monitoring data worksheets, and an end of project mini-report which were encouraged to be shared with pupils, staff or parents via school newsletters.

Table D. 1 Primary School 2023/34 Air Quality Awareness Raising Project

Name	LAQM (TG22) site type	School Role	Location	
			Easting	Northing
Cauldeen	Background Urban	217	267023	843064
Drakies	Background Urban	231	268262	844118
Duncan Forbes	Suburban	274	271764	846584
Inshes	Background Urban	353	268681	843681
Kinmylies	Background Urban	299	264855	844704
Lochardil	Background Urban	337	266050	842680

The aim for 2025/26 is to repeat the project at six further Primary Schools in Inverness, thus ensuring that air quality data has been collected at all Inverness Primary Schools.

Table D. 2 Details of Non-Automatic Monitoring Sites for Primary School Project

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	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)
CDP1	Cauldeen Primary	Urban Background	267020	843127	NO ₂	No	0.6	0.6	No	2.2
CDP2	Cauldeen Primary	Urban Background	267035	843157	NO ₂	No	1.4	1.4	No	2.2
CDP3	Cauldeen Primary	Urban Background	267048	843142	NO ₂	No	1.5	1.5	No	2.2
CDP4	Cauldeen Primary	Urban Background	267103	843120	NO ₂	No	1.6	1.6	No	2.2
CDP5	Cauldeen Primary	Urban Background	267140	843022	NO ₂	No	0.3	0.3	No	2.2
DRP1	Drakies Primary	Suburban	268320	844097	NO ₂	No	1.9	1.9	No	2.2
DRP2	Drakies Primary	Suburban	268180	844225	NO ₂	No	1.4	1.4	No	2.2
DRP3	Drakies Primary	Suburban	268145	844055	NO ₂	No	1.9	1.9	No	2.2
DRP4	Drakies Primary	Suburban	268166	844043	NO ₂	No	1.6	1.6	No	2.2
DRP5	Drakies Primary	Suburban	268306	844047	NO ₂	No	1.9	1.9	No	2.2
DFP1	Duncan Forbes Primary	Suburban	271757	846609	NO ₂	No	11.0	11.0	No	2.2
DFP2	Duncan Forbes Primary	Suburban	271702	846567	NO ₂	No	8.0	8.0	No	2.2

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	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)
DFP3	Duncan Forbes Primary	Suburban	271662	846536	NO ₂	No	2.4	2.4	No	2.2
DFP4	Duncan Forbes Primary	Suburban	271714	846501	NO ₂	No	1.5	1.5	No	2.2
DFP5	Duncan Forbes Primary	Suburban	271776	846504	NO ₂	No	1.6	1.6	No	2.0
INP1	Inshes Primary	Suburban	268864	843665	NO ₂	No	3.0	3.0	No	2.2
INP2	Inshes Primary	Suburban	268780	843698	NO ₂	No	0.5	0.5	No	2.0
INP3	Inshes Primary	Suburban	268740	843722	NO ₂	No	2.5	2.5	No	2.2
INP4	Inshes Primary	Suburban	268689	843632	NO ₂	No	3.4	3.4	No	1.8
INP5	Inshes Primary	Suburban	268717	843658	NO ₂	No	0.5	0.5	No	1.8
KM1	Kinmylies Primary	Suburban	264813	844738	NO ₂	No	8.0	8.0	No	2.2
KM2	Kinmylies Primary	Suburban	264792	844752	NO ₂	No	2.0	2.0	No	2.2
KM3	Kinmylies Primary	Suburban	264821	844761	NO ₂	No	1.6	1.6	No	2.2
KM4	Kinmylies Primary	Suburban	264848	844750	NO ₂	No	3.0	3.0	No	2.2
KM5	Kinmylies Primary	Suburban	264886	844756	NO ₂	No	2.0	2.0	No	2.2

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	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)
LOP1	Lochardil Primary	Suburban	266180	842683	NO ₂	No	1.8	1.8	No	2.2
LOP2	Lochardil Primary	Suburban	266113	842739	NO ₂	No	2.6	2.6	No	2.2
LOP3	Lochardil Primary	Suburban	266072	842755	NO ₂	No	1.4	1.4	No	2.2
LOP4	Lochardil Primary	Suburban	266015	842754	NO ₂	No	1.4	1.4	No	2.2
LOP5	Lochardil Primary	Suburban	265991	842565	NO ₂	No	1.4	1.4	No	2.2

Notes:

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

(2) N/A if not applicable.

Table D. 3 – Annual Mean NO₂ Monitoring Results (µg/m³) for Primary School Sites

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2024 (%) ⁽²⁾	2020	2021	2022	2023	2024
CDP1	267020	843127	Urban Background	100.0	34.0					4.0
CDP2	267035	843157	Urban Background	100.0	34.0					4.1
CDP3	267048	843142	Urban Background	100.0	34.0					4.7
CDP4	267103	843120	Urban Background	75.0	25.0					4.1

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2024 (%) ⁽²⁾	2020	2021	2022	2023	2024
CDP5	267140	843022	Urban Background	100.0	34.0					4.9
DRP1	268320	844097	Suburban	100.0	34.0					6.7
DRP2	268180	844225	Suburban	100.0	34.0					4.4
DRP3	268145	844055	Suburban	100.0	34.0					4.3
DRP4	268166	844043	Suburban	100.0	34.0					4.5
DRP5	268306	844047	Suburban	100.0	34.0					6.6
DFP1	271757	846609	Suburban	100.0	34.0					4.2
DFP2	271702	846567	Suburban	100.0	34.0					4.1
DFP3	271662	846536	Suburban	100.0	34.0					4.4
DFP4	271714	846501	Suburban	75.0	25.0					4.2
DFP5	271776	846504	Suburban	100.0	34.0					4.1
INP1	268864	843665	Suburban	50.0	17.0					5.5
INP2	268780	843698	Suburban	100.0	34.0					4.7
INP3	268740	843722	Suburban	75.0	25.0					4.8
INP4	268689	843632	Suburban	100.0	34.0					3.6

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2024 (%) ⁽²⁾	2020	2021	2022	2023	2024
INP5	268717	843658	Suburban	100.0	34.0					3.9
KM1	264813	844738	Suburban	100.0	34.0					4.8
KM2	264792	844752	Suburban	100.0	34.0					5.4
KM3	264821	844761	Suburban	100.0	34.0					5.3
KM4	264848	844750	Suburban	100.0	34.0					4.5
KM5	264886	844756	Suburban	100.0	34.0					4.2
LOP1	266180	842683	Suburban	100.0	34.0					3.5
LOP2	266113	842739	Suburban	100.0	34.0					3.4
LOP3	266072	842755	Suburban	100.0	34.0					3.4
LOP4	266015	842754	Suburban	100.0	34.0					3.5
LOP5	265991	842565	Suburban	100.0	34.0					3.4

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

☒ Diffusion tube data has been bias adjusted.

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

Notes:

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

NO₂ annual means exceeding 60 µg/m³, indicating a potential exceedance of the NO₂ 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.TG(22) if valid data capture for the full calendar year is less than 75%.

- (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 D. 4 – NO₂ 2023 Monthly Diffusion Tube Results (µg/m³) for Primary School Sites

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted <(x.x)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
CDP1	267020	843127									5.1	5.6	7.6	5.1	5.8	4.0	-	
CDP2	267035	843157									5.7	6.3	7.1	4.7	5.9	4.1	-	
CDP3	267048	843142									6.4	7.1	8.6	5.6	6.9	4.7	-	
CDP4	267103	843120									6.0	5.5		4.6	5.3	4.1	-	
CDP5	267140	843022									6.7	7.0	9.2	5.8	7.2	4.9	-	
DRP1	268320	844097									10.9	9.3	12.2	6.7	9.8	6.7	-	
DRP2	268180	844225									5.9	6.7	8.2	5.0	6.4	4.4	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted <(x.x)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DRP3	268145	844055									5.6	5.4	8.4	5.6	6.2	4.3	-	
DRP4	268166	844043									6.2	7.0	8.0	4.8	6.5	4.5	-	
DRP5	268306	844047									9.1	9.7	11.0	8.5	9.6	6.6	-	
DFP1	271757	846609									4.9	5.6	7.9	6.1	6.1	4.2	-	
DFP2	271702	846567									4.9	5.4	7.8	6.0	6.0	4.1	-	
DFP3	271662	846536									4.8	6.4	8.3	6.2	6.4	4.4	-	
DFP4	271714	846501									4.8		7.5	6.7	6.3	4.2	-	
DFP5	271776	846504									4.8	5.9	8.1	5.4	6.0	4.1	-	
INP1	268864	843665									7.0			6.0	6.5	5.5	-	
INP2	268780	843698									7.6	5.9	8.1	5.7	6.8	4.7	-	
INP3	268740	843722										6.9	9.8	6.7	7.8	4.8	-	
INP4	268689	843632									5.9	4.6	6.1	4.6	5.3	3.6	-	
INP5	268717	843658									5.6	5.0	7.4	5.0	5.8	3.9	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted <(x.x)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
KM1	264813	844738									5.8	6.6	9.5	6.2	7.0	4.8	-	
KM2	264792	844752									7.0	8.9	9.6	6.2	7.9	5.4	-	
KM3	264821	844761									6.6	8.0	10.6	6.1	7.8	5.3	-	
KM4	264848	844750									5.7	7.0	8.2	5.3	6.5	4.5	-	
KM5	264886	844756									5.2	6.0	7.7	5.6	6.1	4.2	-	
LOP1	266180	842683									4.3	5.0	6.7	4.5	5.1	3.5	-	
LOP2	266113	842739									4.6	5.2	5.8	4.2	5.0	3.4	-	
LOP3	266072	842755									5.0	4.9	5.9	4.2	5.0	3.4	-	
LOP4	266015	842754									4.3	5.2	6.7	4.3	5.1	3.5	-	
LOP5	265991	842565									4.2	5.2	6.1	4.2	4.9	3.4	-	

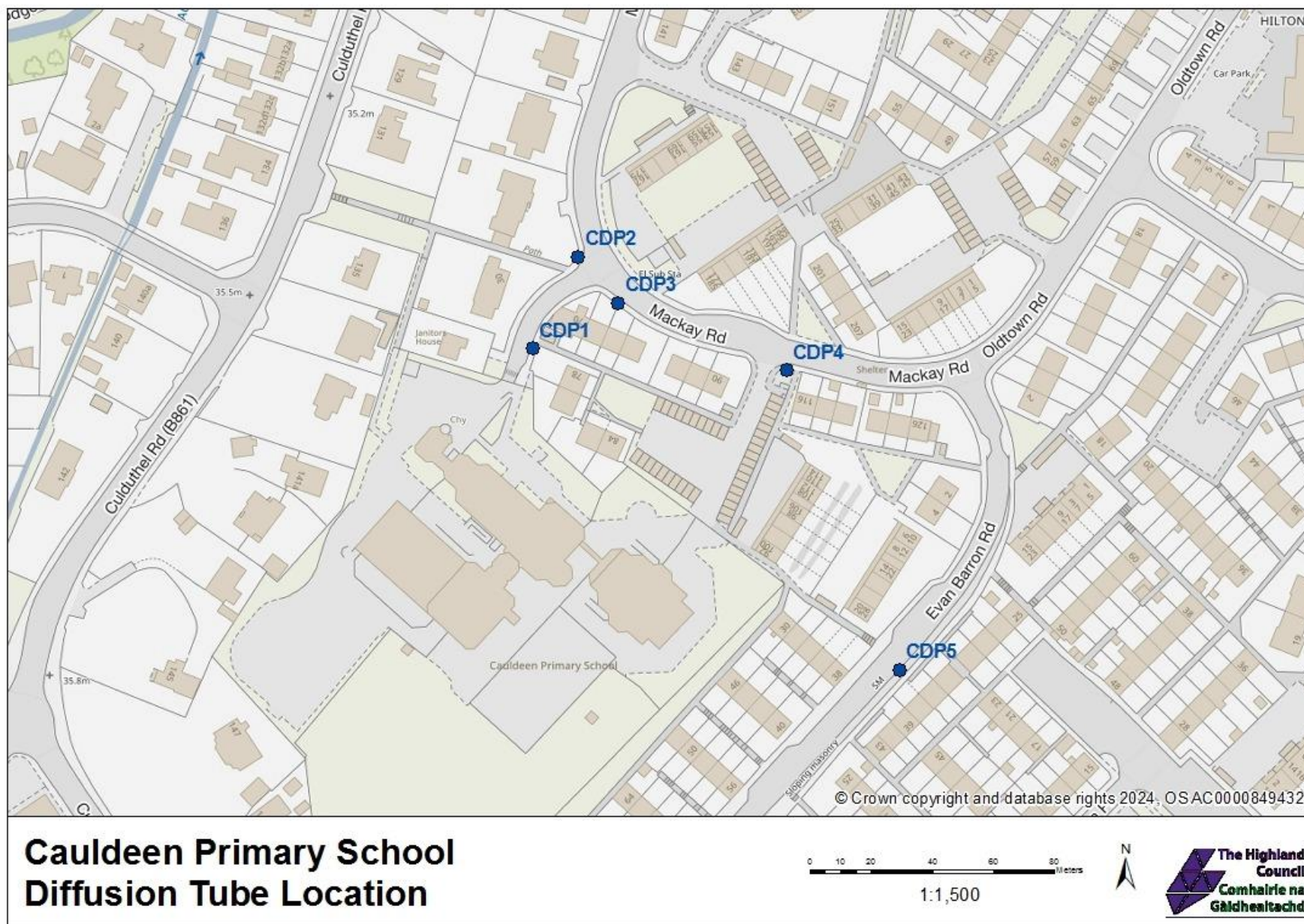
- ☒ All erroneous data has been removed from the NO₂ diffusion tube dataset presented in Table D.4.
- ☒ Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22.
- ☐ Local bias adjustment factor used.
- ☒ National bias adjustment factor used (0.84).
- ☒ Where applicable, data has been distance corrected for relevant exposure in the final column.

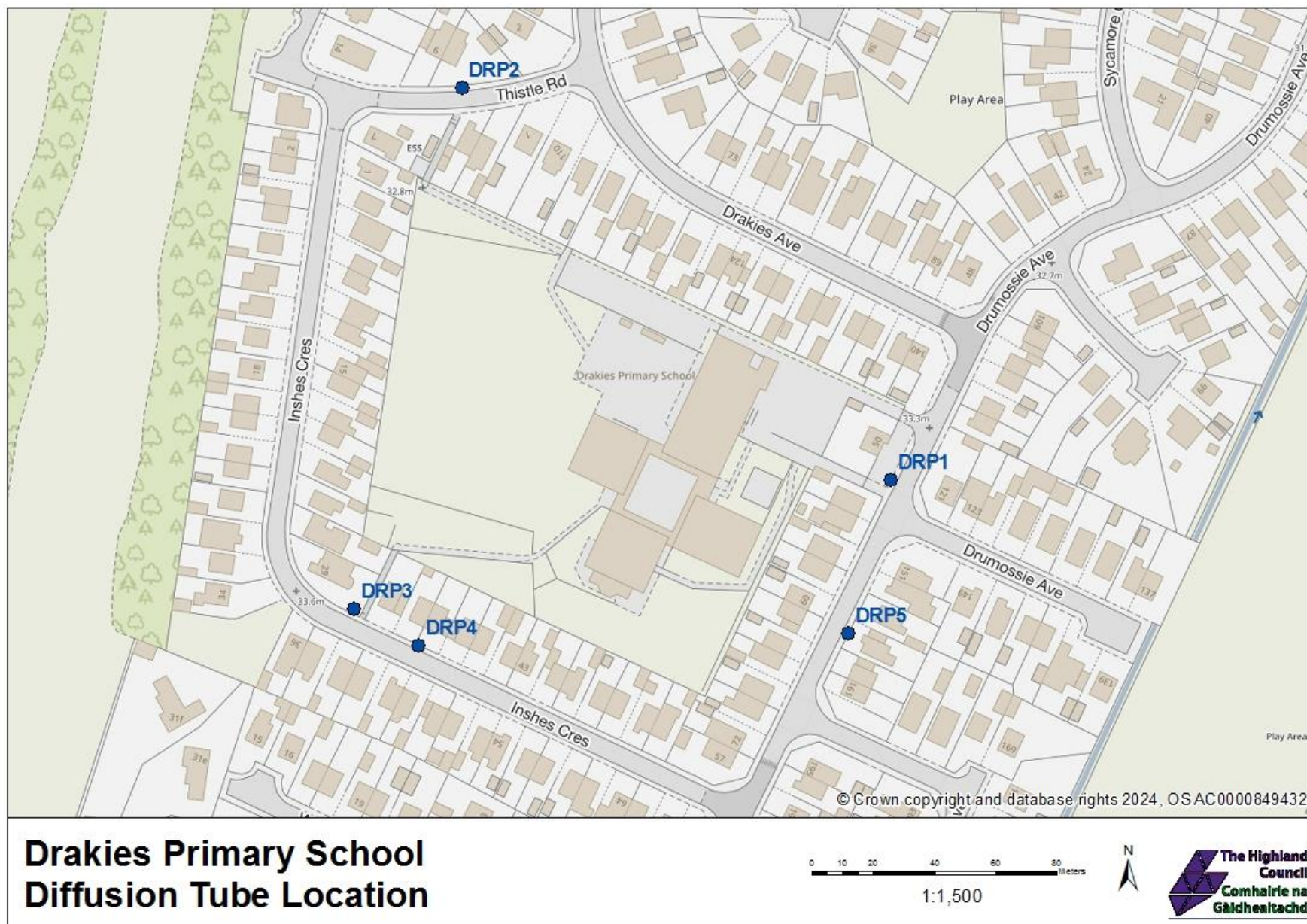
☐ <Local Authority> confirm that all 2024 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System (confirm by selecting in box).

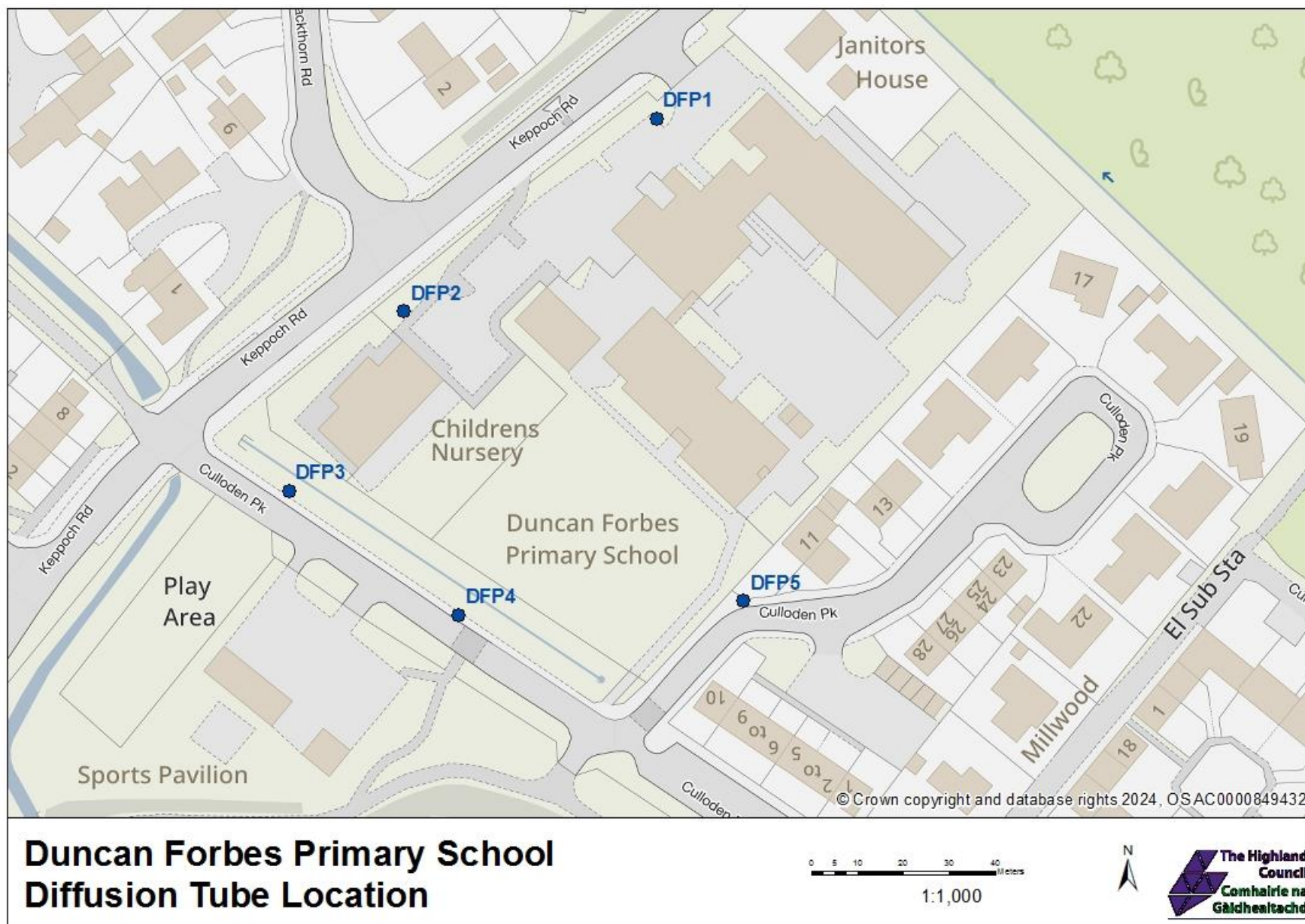
Notes:

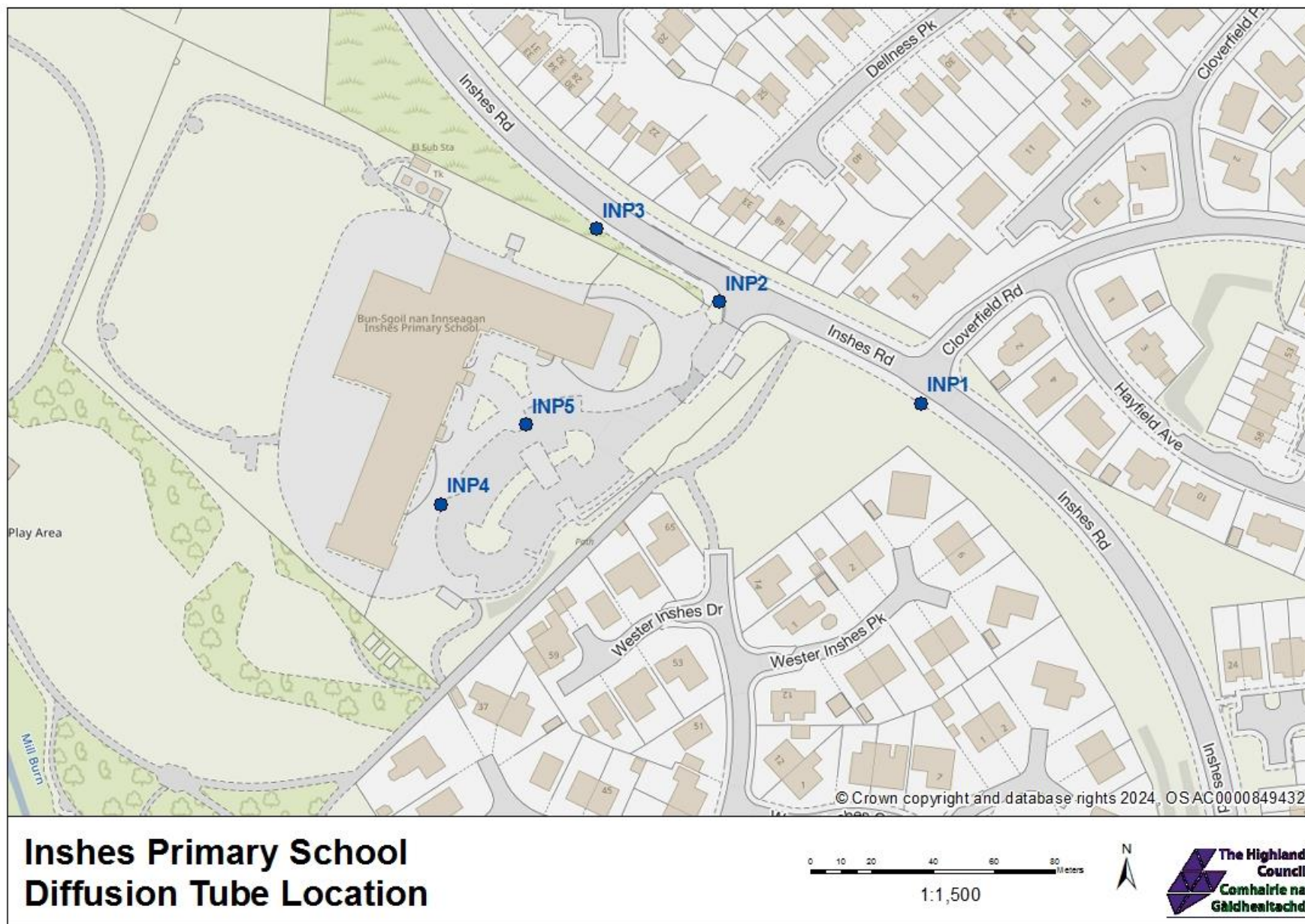
Exceedances of the NO₂ annual mean objective of 40 µg/m³ are shown in **bold**.

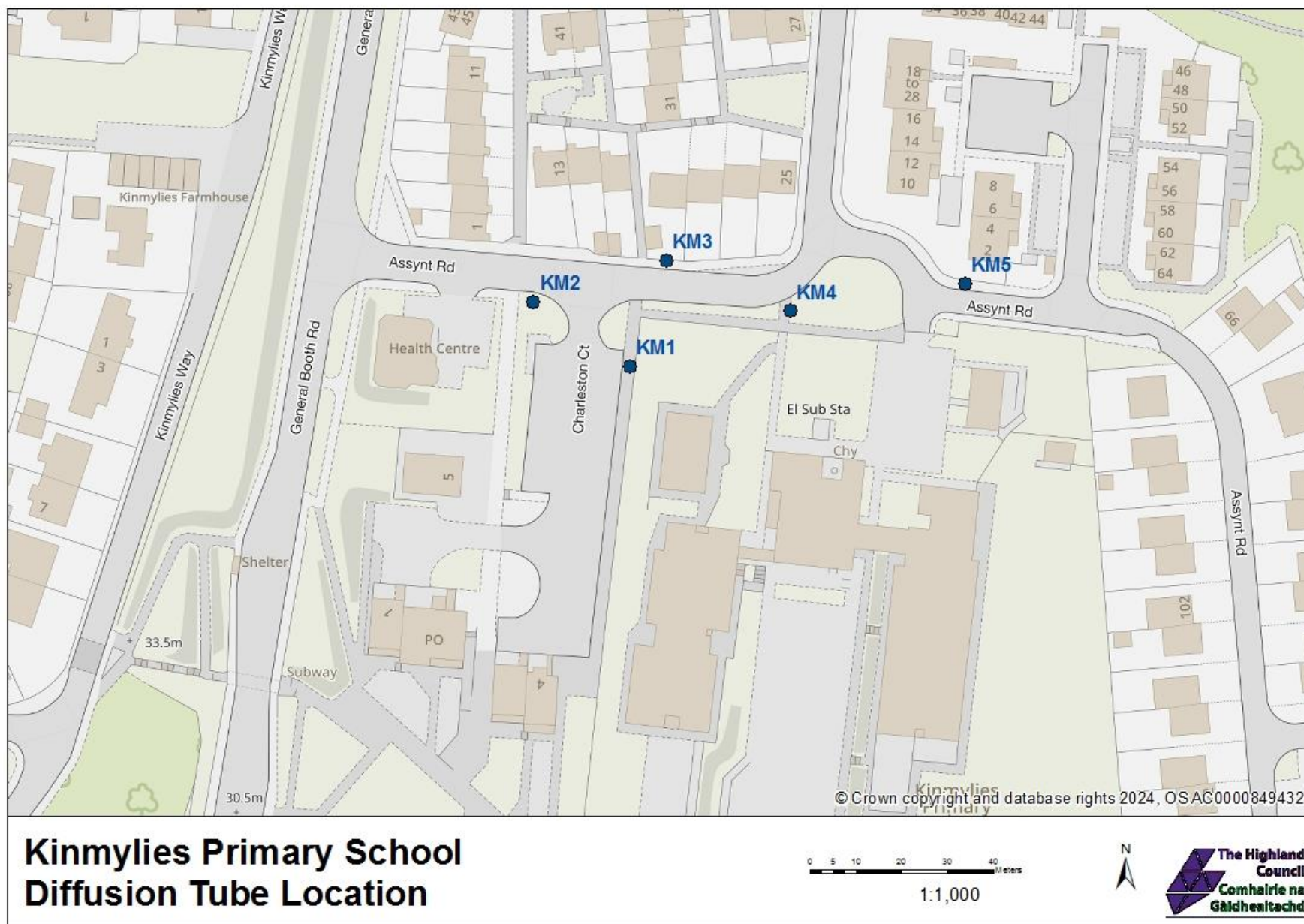
NO₂ annual means exceeding 60 µg/m³, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.

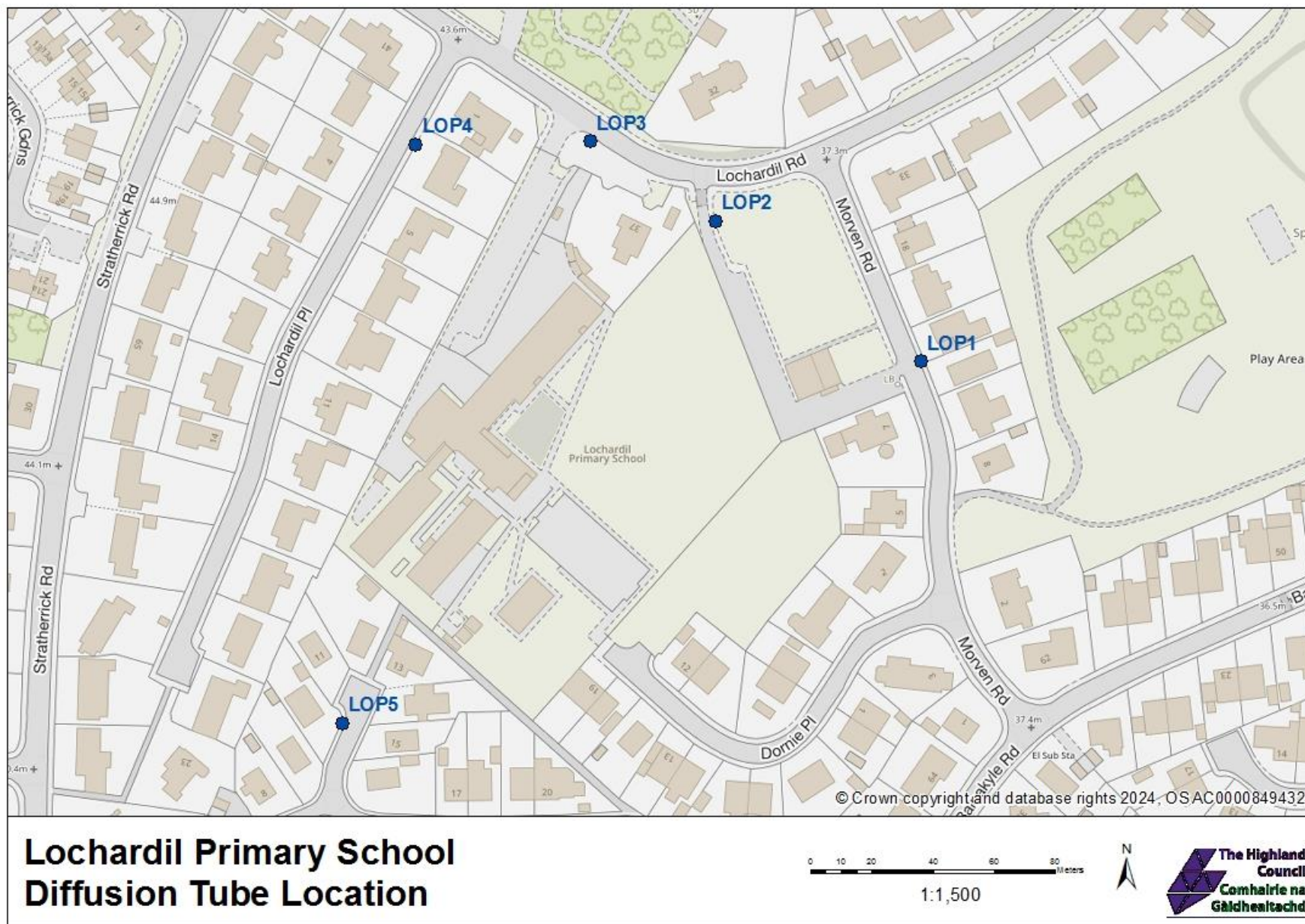












Glossary

	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the LA 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
APR	Air quality Annual Progress Report
AURN	Automatic Urban and Rural Network (UK air quality monitoring network)
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
DT	Diffusion Tube
EIA	Environmental Impact Assessment
EV	Electric Vehicle
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
LEV	Low emission vehicle
LSO	Local Site Operator with respect to the AURN

	Description
NO₂	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM₁₀	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
PM_{2.5}	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO₂	Sulphur Dioxide
STAG	Scottish Transport Appraisal Guidance
TS	Transport Scotland
ULEV	Ultra-low emission vehicle

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