

2019 Air Quality Annual Status Report (ASR)

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

1st October 2019

Ref: AD/CDC/2019

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|-------------------------|--|
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Executive Summary: Air Quality in Our Area

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 and older people, and those with heart and lung conditions. There is also often a strong correlation with equalities issues, because areas with poor air quality are also often in the less affluent areas^{1,2}.

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion³.

Air Quality in Craven

Craven District Council is principally a rural district. Very few areas within the district are of concern in relation to air quality. The main pollutants of concern are oxides of nitrogen as well as particulate matter emanating from vehicles on the road network, from the burning of fuel on domestic appliances and from Part B industrial activities such as biomass incineration, quarries etc.

Craven District Council reinstated its nitrogen dioxide monitoring program in 2017 following a 4-year suspension and are committed to meeting its responsibility to provide an air quality assessment of the district.

The Council undertake monitoring of nitrogen dioxide in areas most affected by traffic congestion where human receptors live and work in close proximity. Since the monitoring program was reinstated it has been identified that results across the district have consistently returned annual running mean values below the government's air quality objective of 40µg/m³. As a result, the Council has not at any time identified the need to progress to more in-depth analysis or needed to progress to declaring an AQMA anywhere in the district.

¹ Environmental equity, air quality, socioeconomic status and respiratory health, 2010

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

³ Defra. Abatement cost guidance for valuing changes in air quality, May 2013

Actions to Improve Air Quality

Nitrogen dioxide monitoring will continue at the same sites as monitored in 2018, the Council will also be introducing a minimum of 5 additional monitoring sites in 2020 in order to obtain further data on the air quality in the district. If the results of any of the nitrogen dioxide monitoring indicate an upward trend with exceedance(s) of the air-quality objective then Craven District Council will take the steps required by the Local Air Quality Management (LAQM) Policy Guidance.⁴

Particulate matter is a growing cause nationally as described in the governments recently published Clean Air Strategy 2019; in order to tackle particulate matter the Council has smoke control areas within the district which are inspected frequently, if any breaches are identified within these areas the Council act accordingly.

The Council also has an inspection schedule for all the permitted processes within the district; inspections in 2018 found all operators were meeting emission limit values for such pollutants as particulate matter, carbon monoxide etc as specified in their permits.

Over the last 12 months the Council has also been aware of new biomass installations being installed throughout the district as part of the commercial renewable heating incentive scheme (RHI). The Council have serious concerns that some operators could be misusing these installations which consequently may give rise to local pollution; it has been determined that some of these installations may also require an environmental permit. The Council notified Ofgem of these concerns and subsequently a data sharing agreement has been agreed, this agreement allows the Council to obtain information from Ofgem of the locations incinerators with a burn rate over 50kg/hr are installed; all incinerators that exceed this threshold are due to be inspected by the Council.

⁴ Defra Local Air Quality Management Policy Guidance (PG16), April 2016

The proposed adoption of Craven District Councils New Local Plan Policy and the existing North Yorkshire County Council Policy (LTP4) is seen to be a positive step to improving air quality in the district as this encompasses a number of factors that impact air quality.

Craven has no Air Quality Management Areas (AQMA) within the district.

Conclusions and Priorities

Craven District Council is committed to meeting its responsibility to monitor air quality in the district through its ongoing nitrogen dioxide (NO₂) diffusion tube monitoring program. Monitoring results across the district have consistently returned both monthly and annual running mean values below the government's air quality objective of 40µg/m³. As a result, the Council has not at any time identified the need to progress to more in-depth analysis, or needed to progress to declaring of an AQMA anywhere in the district.

The priorities for the Council are to maintain air quality in the district and undertake all the steps described under the heading 'Action to Improve Air Quality'.

Local Engagement and How to get involved

Craven District Council currently has no schemes to help improve air quality, however North Yorkshire County Council works with schools to improve road safety, promote cycling and travel alternatives and travel awareness and offer cycle training to primary school pupils. Members of the public can help by reducing the number of car-driver trips, car sharing, increasing use of public transport and increasing active travel (cycling and walking).

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1 Local Air Quality Management

This report provides an overview of air quality in the Craven District during 2018. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995) and the relevant Policy⁵ and Technical⁶ 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 Craven District Council to improve air quality and any progress that has been made.

The statutory air quality objectives applicable to LAQM in England can be found in Appendix E.

⁵ Defra Local Air Quality Management Policy Guidance (PG16), April 2016

⁶ Defra Local Air Quality Management Technical Guidance (PG16), February 2018

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority must prepare an Air Quality Action Plan (AQAP) within 12-18 months setting out measures it intends to put in place in pursuit of compliance with the objectives.

Craven District currently does not have any AQMAs.

2.2 Progress and Impact of Measures to address Air Quality in Craven District

Defra's appraisal of last year's ASR indicated that the conclusions reached in the report were not acceptable. The appraisal included commentary/provisos listed below:

Commentary

The report does not meet the requirements specified in LAQM Technical Guidance 2016 (TG16). The report must be resubmitted to DEFRA as soon as possible, addressing each of the points provided below:

1. The report does not follow the standard template for Annual Status Reports, specifically it does not provide data in the required format for results. The latest version of the ASR England Template can be accessed through: <https://laqm.defra.gov.uk/review-and-assessment/report-templates.html> - Annual Status Report (ASR) for England (excluding London .docx 99kb). For further guidance please refer to TG16.
2. The report does not contain a section on QA/QC procedures, and there is no evidence to suggest QA/QC procedures have been applied. This section should discuss various corrections, changes to sources, summaries of additional evidence, details of who analysed diffusion tubes and so on. For further guidance please refer to TG16
3. All NO₂ diffusion tube data must be corrected for bias adjustment (refer to <https://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html>) as a minimum. If applicable, distance corrections and annualisation should also be discussed. The report must contain adjusted data and have a detailed section discussing QA/QC procedures. For further guidance please refer to TG16.

4. There is no presentation of historical data. Even if monitoring has not taken place for 4 years the report should include some discussion of historical trends, using data captured pre-2014 as a baseline. For further guidance please refer to TG16.
5. There is limited discussion of PM2.5 issues and the measures the Council are taking to mitigate emissions, especially in relation to the Public Health Outcomes Framework. For further guidance please refer to TG16.
6. For all future reports please ensure example calculations are included for all types of data corrections.
7. Maps of monitoring sites could be presented in a clearer way. Detailed information is not required in Appendix D, just maps (of a suitable scale, not too zoomed in) with monitoring sites labelled as per the results tables A.1 and A.2. For further guidance please refer to TG 16.

Matters taken to address these comments are as follows:

1. In 2019, the author has followed the standard template for Annual Status Reports and provided data in the required format for results.
2. The 2019 report contains a section on QA/QC procedures and applies QA/QC procedures too.
3. All NO₂ diffusion tube data in the 2019 report has been corrected for bias adjustment and annualisation/distance correction has been considered.
4. Historical data has been included in the 2019 report.
5. A more expansive discussion on PM2.5 issues has been included in the 2019 report.
6. Example calculations have been included for all types of data corrections.
7. Maps of monitoring sites in the 2019 report are now presented in a clearway and the detailed information in Appendix D that was alluded to as been deleted.

Craven District Council and North Yorkshire County Council has taken forward a number of direct measures during the current reporting year in pursuit of improving local air quality.

Craven District Council is awaiting approval from Members for the adoption of its new Local Plan Policy⁷, this has been signed off by the Planning Inspectorate. It is projected that approval will be granted in November 2019. A number of policies within the plan have been created to assist with the improvement of air quality in the district, the draft local plan can be observed by clicking on the following link <https://www.cravendc.gov.uk/planning/planning-policy/new-local-plan/2018-publication-submission-and-examination/>. The policies adopted that will assist with air quality are summarised in Table 2.1.

North Yorkshire County Council, as local highway authority, has objectives which relate to transport as detailed in their Local Transport Plan four (LTP4)⁸. These are summarised in Table 2.1. This local plan can be observed by clicking on the following link <https://www.northyorks.gov.uk/local-transport-plan>

Yorkshire Dales National Park Authority also has a Local Plan⁹ which with policies that consider air quality, this local plan can be observed by clicking on the following link https://www.yorkshiredales.org.uk/_data/assets/pdf_file/0011/857558/Yorkshire-Dales-National-Park-Local-Plan-2015-30.pdf

Other measures implemented by the District Council are set out in Table 2.1 too.

⁷ Craven DC local Plan 27.03.2018

⁸ North Yorkshire County Council, Local Transport Plan four, 2016-2045

⁹ Yorkshire Dales National Park, Local Plan 2015-2030

Table 2.1 – Progress on Measures to Improve Air Quality

| Measure No. | Measure | EU Category | EU Classification | Organisations involved and Funding Source | Planning Phase | Implementation Phase | Key Performance Indicator | Reduction in Pollutant / Emission from Measure | Progress to Date | Estimated / Actual Completion Date | Comments / Barriers to implementation |
|-------------|---|---|--|---|----------------|----------------------|--|--|------------------------|------------------------------------|---------------------------------------|
| 1 | CDC Local Plan Policy ENV7 (d): Development will avoid severe residual cumulative impacts of traffic congestion and wherever possible, will help to ease existing traffic congestion. | Policy Guidance and Development Control | Air Quality Planning and Policy Guidance | Craven DC, North Yorkshire County Council | N/A | Nov 2019 | Roadside emission values remain below AQ objective | PM, Nox, | Ongoing implementation | – | – |
| 2 | CDC Local Plan Policy ENV7 (e): The location, layout and design of development will encourage walking, cycling and the use of public transport, and green travel plans will promote reductions in car use. . | Policy Guidance and Development Control | Air Quality Planning and Policy Guidance | Craven DC, North Yorkshire County Council | N/A | Nov 2019 | Reduced use of private vehicles on the local network | PM, Nox, | Ongoing implementation | – | – |
| 3 | CDC Local Plan Policy ENV7 (f): The location, layout and design of development will avoid or reduce harmful or unpleasant emissions from buildings, and mitigation measures will be introduced where necessary. | Policy Guidance and Development Control | Air Quality Planning and Policy Guidance | Craven DC, North Yorkshire County Council | N/A | Nov 2019 | – | PM, Nox, | Ongoing implementation | – | – |
| 4 | CDC Local Plan Policy ENV9 (d): Renewable and low carbon energy development will help to reduce carbon emissions and support sustainable development. This will be achieved by Safeguarding | Policy Guidance and Development Control | Air Quality Planning and Policy Guidance | Craven DC, North Yorkshire County Council | N/A | Nov 2019 | – | PM, Nox, | Ongoing implementation | – | – |

Craven District Council

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| | the amenity of local residents and communities, and ensuring that satisfactory mitigation can be achieved to minimise impacts such as noise, smell or other pollutants; | | | | | | | | | | |
| 5 | CDC Local Plan Policy ENV9 - Small Scale Wind Turbines In the case of small scale turbines, which require planning permission (generally 30m or under in tower height but considered on a case by case basis), proposals will be supported | Policy Guidance and Development Control | Air Quality Planning and Policy Guidance | Craven DC, North Yorkshire County Council | N/A | Nov 2019 | – | PM, Nox | Ongoing implementation | – | – |
| 6 | Local Transport Plan 4 (LTP4) | Policy Guidance and Development Control | Air Quality Planning and Policy Guidance | North Yorkshire County Council | N/A | 2016 | – | PM, Nox | Ongoing implementation | – | Two objectives of the plan are - 'Environment and Climate Change' - managing the adverse impact of transport on the environment, and 'Healthier Travel' - promoting healthier travel opportunities. |
| 7 | Transport related Air Quality Policy | Policy Guidance and Development Control | Air Quality Planning and Policy Guidance | North Yorkshire County Council | N/A | 2016 | Possible air quality impact caused by development | PM, Nox | Being updated as part of LTP4 | – | Aim to reduce air quality issues |
| 8 | Report on ULEV charging points | Policy Guidance and Development Control | Air Quality Planning and Policy Guidance | North Yorkshire County Council | N/A | Ongoing | – | PM, Nox | Being developed as part of LTP4 | – | Officers continue with review of policy and approach to the provision of facilities in light of popularity of ULEVs |
| 9 | Road safety and travel awareness | Promoting Travel Alternatives | School Travel Plans | North Yorkshire County Council | N/A | Ongoing | – | PM, Nox | Being developed as part of LTP4 | – | Cycle training to primary school pupils. Promotion of non-car journeys to/from school via Junior Road Safety Officers (JRSO) and curriculum resources. |

Craven District Council

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|----|--|---|---|---|----------|----------|---|----------|---|----------|--|
| 10 | Countywide Civil Parking Enforcement | Traffic Management | Workplace Parking Levy, Parking Enforcement on highway | North Yorkshire County Council | N/A | Ongoing | – | PM, Nox | Being developed as part of LTP5 | – | To address parking related traffic congestion / disruption |
| 11 | Promotion of cycling | Promoting Travel Alternatives | Promotion of cycling | North Yorkshire County Council | N/A | Ongoing | – | PM, Nox, | Being developed as part of LTP5 | – | Social media posts. Safety information packs. Engagement with clubs and event organisers. Face-to-face engagement with cyclists. Stands at major events. Road-side information posters. Bikeability programme. |
| 12 | Management and optimisation of traffic signals - whole district | Policy Guidance and Development Control | Air Quality Planning and Policy Guidance | North Yorkshire County Council | N/A | Ongoing | – | PM, Nox | Ongoing implementation | – | Aim to reduce congestion |
| 13 | IPPC Controls - Permitted Process Inspections | Environmental Permits | Measures to reduce pollution through IPPC Permits going beyond BAT | Craven DC | N/A | N/A | Compliant industrial activities, emission limits not been exceeded - KPI met. | PM, Nox | Ongoing implementation | – | – |
| 14 | IPPC Controls - Inspecting all commercial biomass incinerators installed through the RHI scheme that have a max burn rate of 50kg/hr to identify as to whether they need permitting. | Environmental Permits | Measures to reduce pollution through IPPC Permits going beyond BAT | Craven DC | 01.05.19 | 01.09.19 | – | PM, Nox | 1 activity identified that needs permitting | 01.09.10 | – |
| 15 | Continuing investigations (enforcement where required) of domestic dwellings breaching smoke control order | Other | Other | Craven DC | N/A | N/A | – | PM, Nox | – | – | – |
| 16 | Installation of EV charging points at YDNP car parks within the district | Promoting Low Emission Transport | Procuring alternative Refuelling infrastructure to promote Low Emission | Yorkshire Dales National Park Authority | Ongoing | 2019 | N/A | PM, Nox | N/A | – | Subject to satisfactory resolution of issues around procurement, installation & ongoing management & administration. |

Craven District Council

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| | | | Vehicles, EV recharging, Gas fuel recharging | | | | | | | | |
| 17 | Installation of EV charging points at certain CDC car parks | Promoting Low Emission Transport | Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging | Craven DC | Ongoing | N/A | N/A | PM, Nox | N/A | – | Subject to satisfactory management approval and adoption by Members (as appropriate). |
| 18 | Reduction of emissions from Licenced Taxis by the authority | Vehicle Fleet Efficiency | Testing Vehicle Emissions | Craven DC | N/A | 2018 | Reduced vehicle fleet emissions - KPI met. | PM, Nox | Ongoing implementation | – | Age restrictions on vehicles to ensure more modern/cleaner vehicles are used. |
| 19 | Reduction of emissions from Council vehicle fleet | Vehicle Fleet Efficiency | Fleet efficiency and recognition schemes | Craven DC | 2017 | Ongoing | N/A | PM, Nox | Ongoing implementation | – | 1 electric vehicle operational, exploring new electrical technology for bin wagons. Vehicle Route Optimisation software used. |
| 20 | Management have agreed to extend the diffusion tube monitoring programme by 100% | Policy Guidance and Development Control | Air Quality Planning and Policy Guidance | Craven DC | 01/10/2019 | N/A | N/A | PM, Nox | N/A | – | – |

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

As detailed in Policy Guidance LAQM. TG16 (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.

There are two smoke control areas within the Craven District that covers the most densely populated areas; officer's proactively monitor smoke emissions from domestic chimneys within these areas and take appropriate action where required if a breach is identified. This approach has been adopted in an attempt to reduce particulate emissions in the district.

To address PM_{2.5}, the Council are also due to inspect all incinerators installed as part of the RHI scheme with a burn rate over 50kg/hr to identify as to whether they are being operated in accordance with manufacturers instructions and to establish as to whether they need to be permitted by the Council.

Public Health England (PHE) produce figures, as part of the Public Health Outcomes Framework (PHOF), in relation to certain health indicators (found at <http://www.phoutcomes.info/public-health-outcomes-framework#gid/1000049>). The indicator of relevance (within the context of this Annual Status Report report) is 'Fraction of mortality attributable to particulate air pollution'. The values currently available from PHE for this indicator are for 2017. The value for this indicator for Craven District Council is 3.3%. The value for the same indicator for the whole of the Yorkshire and Humber region is 4.2%, with the value for England given as 5.1%.

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

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Craven District Council does not undertake automatic (continuous) monitoring.

National monitoring results are available at <https://uk-air.defra.gov.uk/>

3.1.2 Non-Automatic Monitoring Sites

Craven District Council undertook non-automatic (passive) monitoring of nitrogen dioxide (NO₂) at 5 sites during 2018, details of these sites are shown in table A.1 of Appendix A: Monitoring results.

Maps showing the location of the monitoring sites are provided in Appendix D, figure D.1.

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.

3.2 Individual Pollutants

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

3.2.1 Nitrogen Dioxide (NO₂)

Table A.2 in Appendix A compares the ratified and adjusted monitored NO₂ annual mean concentrations for the past 2 years with the air quality objective of 40µg/m³.

For diffusion tubes, the full 2018 dataset of monthly mean values is provided in Appendix B.

Monitoring Results Summary

The air-quality objective of $40\mu\text{g}/\text{m}^3$ was not exceeded at any of the sites in 2018. As there were no annual mean values greater than $60\mu\text{g}/\text{m}^3$, this indicates that the 1-hour mean objective of $200\mu\text{g}/\text{m}^3$, not to be exceeded more than 18 times per year is unlikely to be exceeded at these sites.

Trend

There is a notable upward trend displayed by data collected from the monitored locations over the last 2 years.

Historical Monitoring data (Nitrogen Dioxide)

Figure A.2 shows the Annual Mean NO₂ Concentrations from the historic monitoring locations (2001 – 2012) prior to suspension of the monitoring program in 2012. Over the monitoring period the annual air quality objective of $40\mu\text{g}/\text{m}^3$ was never exceeded.

The data from these locations was assessed prior to the reinstatement of the monitoring program and diffusion tubes were placed in areas which gave the highest readings from previous monitoring, for example Newmarket Street, Skipton etc.

Appendix A: Monitoring results

Table A.1 – Details of Non-Automatic Monitoring Sites

| Site ID | Site Name | Site Type | X OS Grid Ref | Y OS Grid Ref | Pollutants Monitored | In AQMA? | Distance to Relevant Exposure (m) ⁽¹⁾ | Distance to kerb of nearest road (m) ⁽²⁾ | Tube collocated with a Continuous Analyser? | Height (m) |
|---------|----------------------------|-----------|---------------|---------------|----------------------|----------|--|---|---|------------|
| 1 | Station Road Bentham | Roadside | 366749 | 469197 | NO ₂ | NO | 0.85 | 1.37 | YES | 2 |
| 1b | Duke Street Settle | Roadside | 381959 | 463625 | NO ₂ | NO | 0.56 | 1.21 | YES | 3 |
| 2 | New Market Street, Skipton | Roadside | 399138 | 451611 | NO ₂ | NO | 0.47 | 1.40 | YES | 2.78 |
| 2b | Craven Street | Roadside | 398797 | 451178 | NO ₂ | NO | 15.35 | 1.5 | YES | 2.46 |
| 3 | Main Street, Crosshills | Roadside | 400628 | 444998 | NO ₂ | NO | 1.42 | 1.66 | YES | 2.55 |

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.2 – Annual Mean NO₂ Monitoring Results

| Site ID | Site Type | Monitoring Type | Valid Data Capture for Monitoring Period (%) ⁽¹⁾ | Valid Data Capture 2018 (%) ⁽²⁾ | NO ₂ Annual Mean Concentration (µg/m ³) | | | | |
|---------|-----------|-----------------|---|--|--|---------|---------|-------|-------|
| | | | | | 2014 | 2015 | 2016 | 2017 | 2018 |
| 1 | Roadside | Diffusion Tube | 39% | 100% | No Data | No Data | No Data | 13.35 | 19.82 |
| 1b | Roadside | Diffusion Tube | 40% | 100% | No Data | No Data | No Data | 19.61 | 24.42 |
| 2 | Roadside | Diffusion Tube | 39% | 100% | No Data | No Data | No Data | 20.42 | 28.91 |
| 2b | Roadside | Diffusion Tube | 40% | 100% | No Data | No Data | No Data | 17.60 | 23.96 |
| 3 | Roadside | Diffusion Tube | 40% | 100% | No Data | No Data | No Data | 22.72 | 31.47 |

☒ Diffusion tube data has been bias corrected

☐ Annualisation has been conducted where data capture is <75%

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**.

(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%).

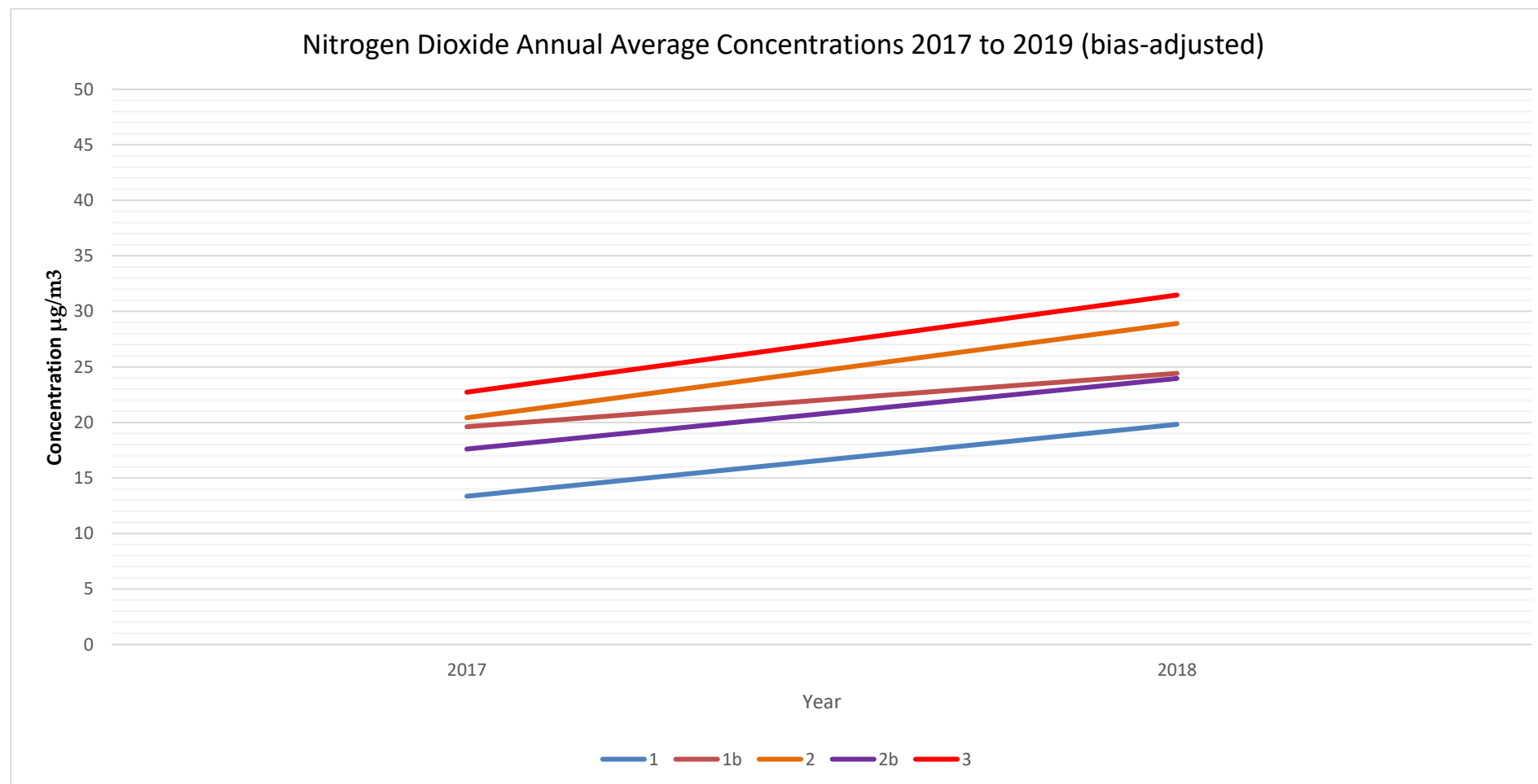
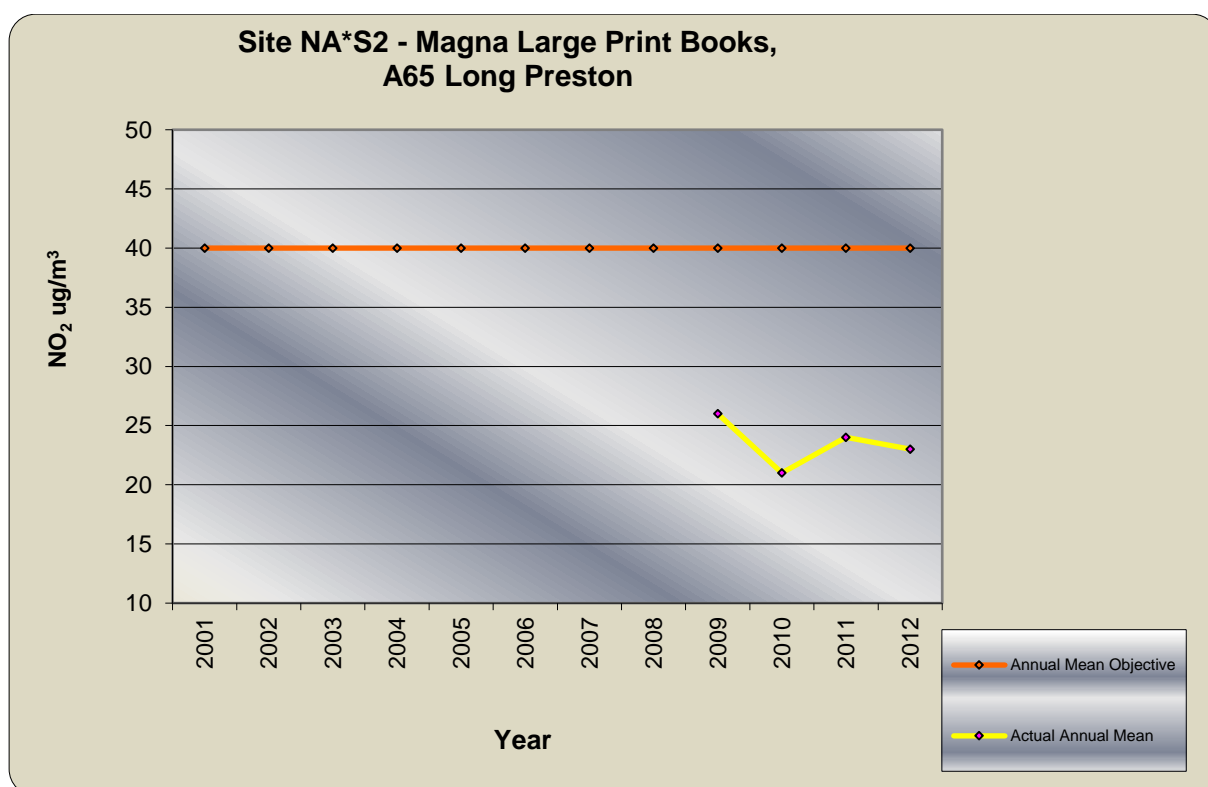
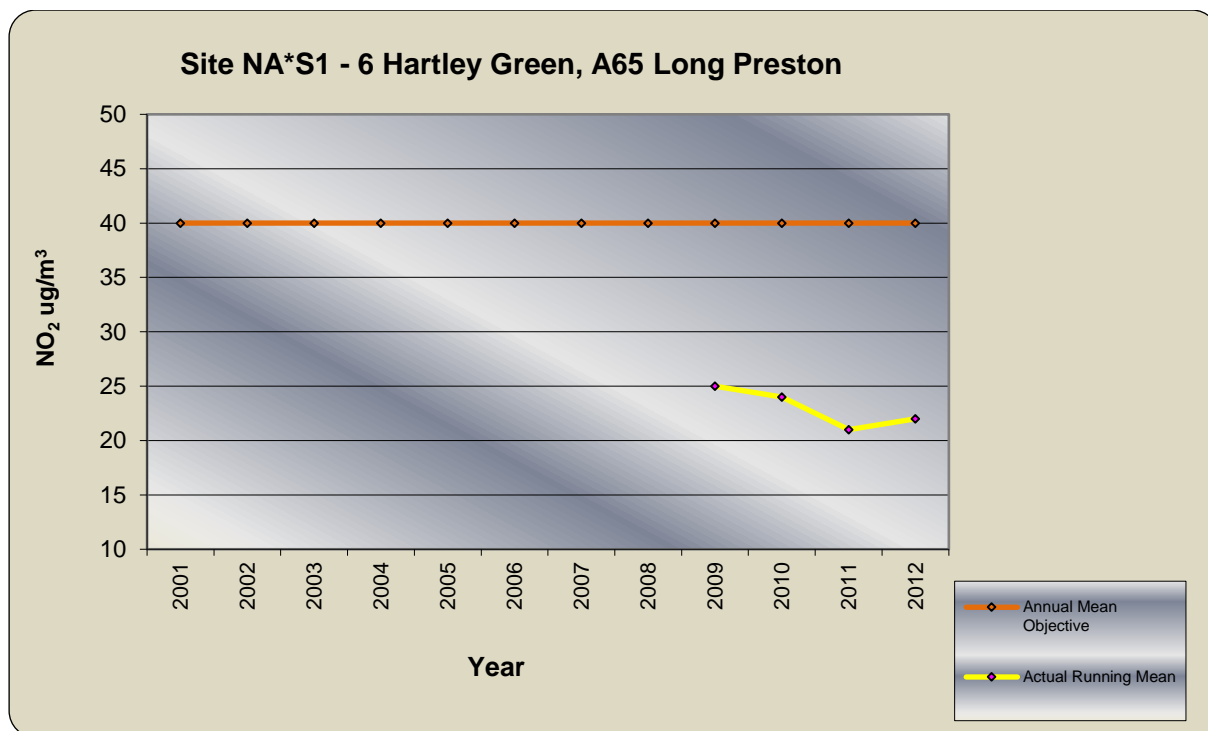
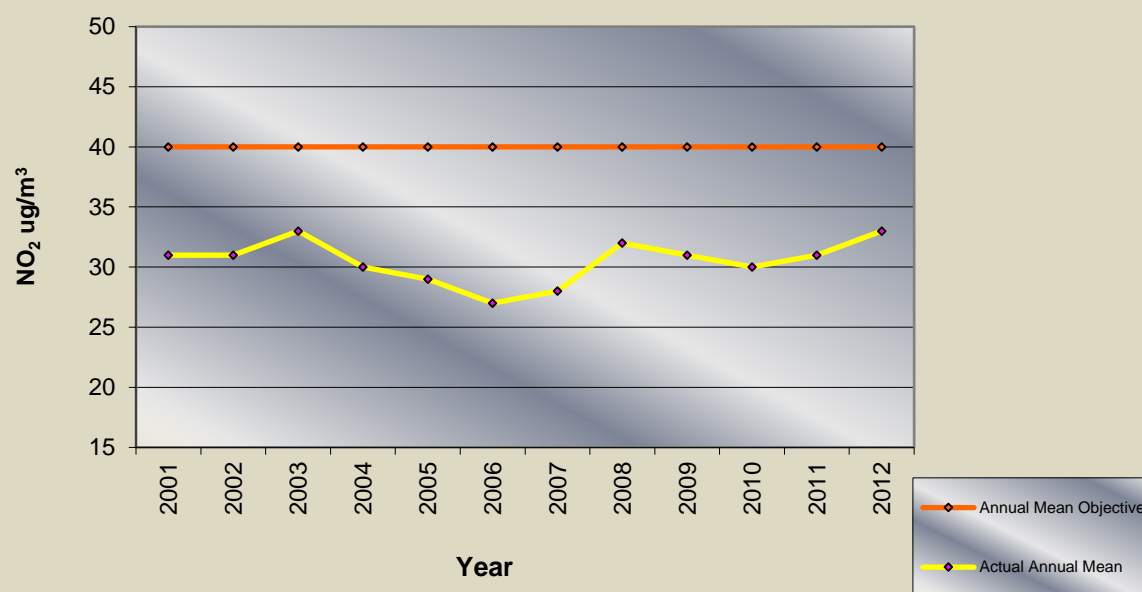
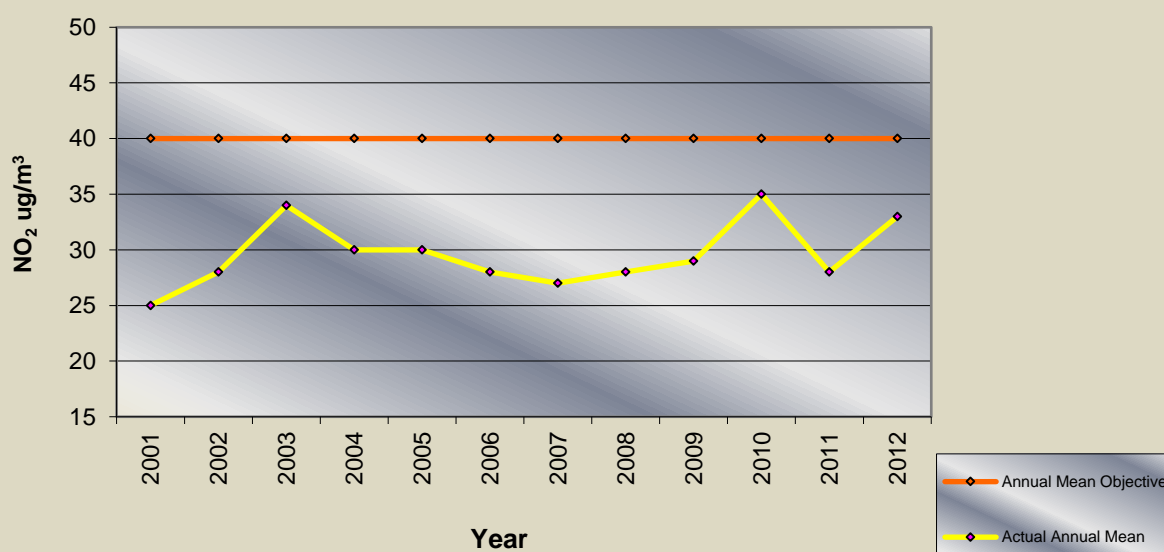
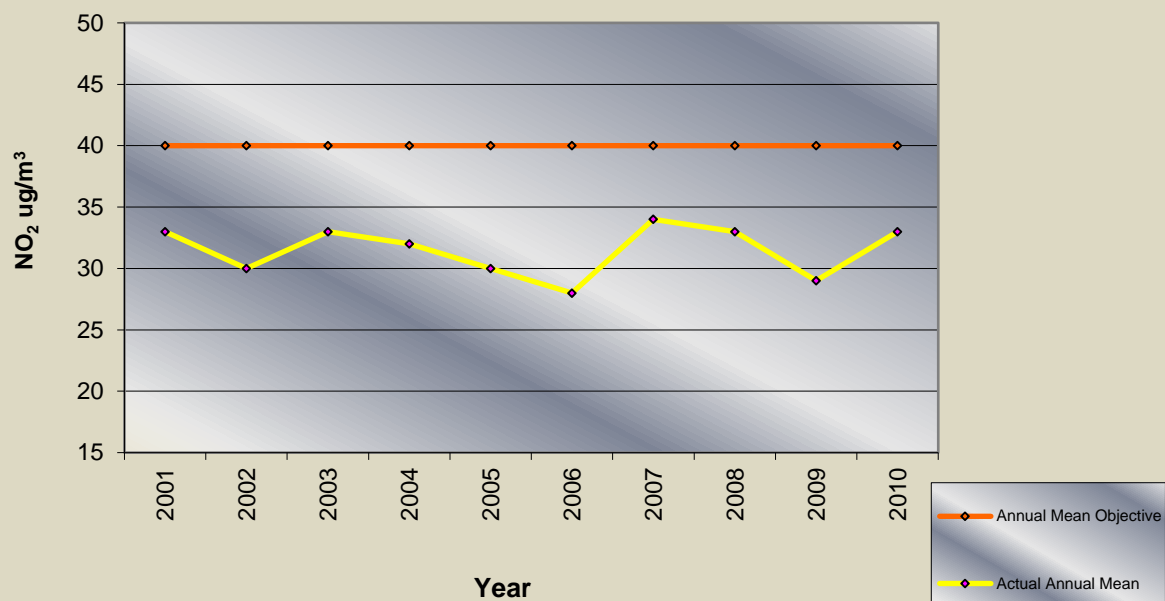
Figure A.1 – Trends in Annual Mean NO₂ Concentrations 2017 -2018 (bias adjusted)

Figure A.2 – Trends in Annual Mean NO₂ Concentrations of the historic monitoring locations dated 2001 -2012 (bias adjusted).

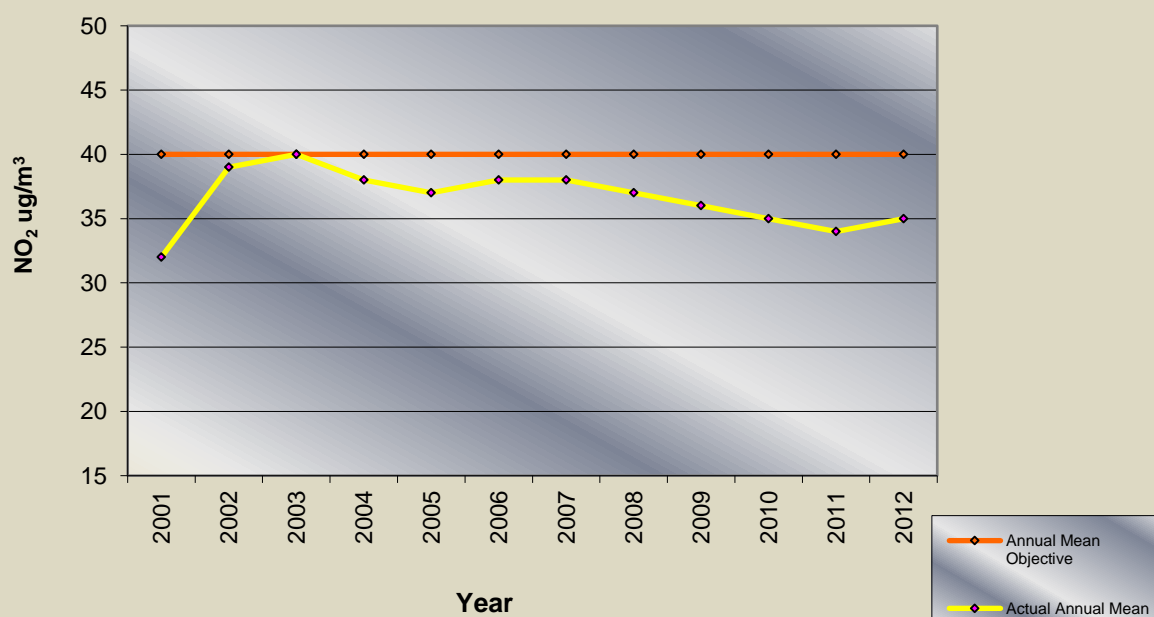


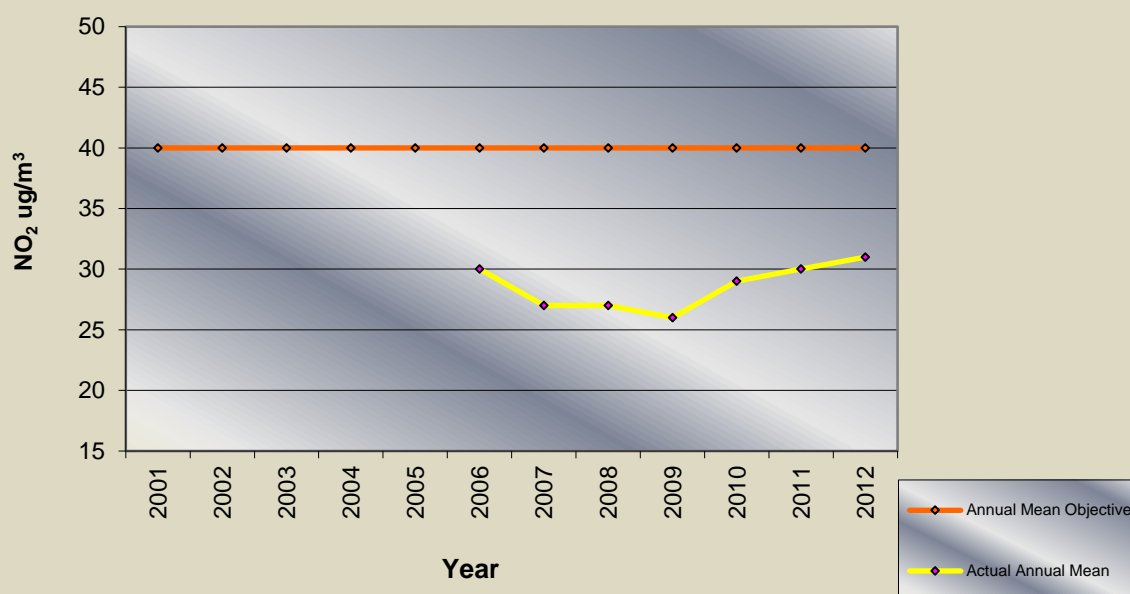
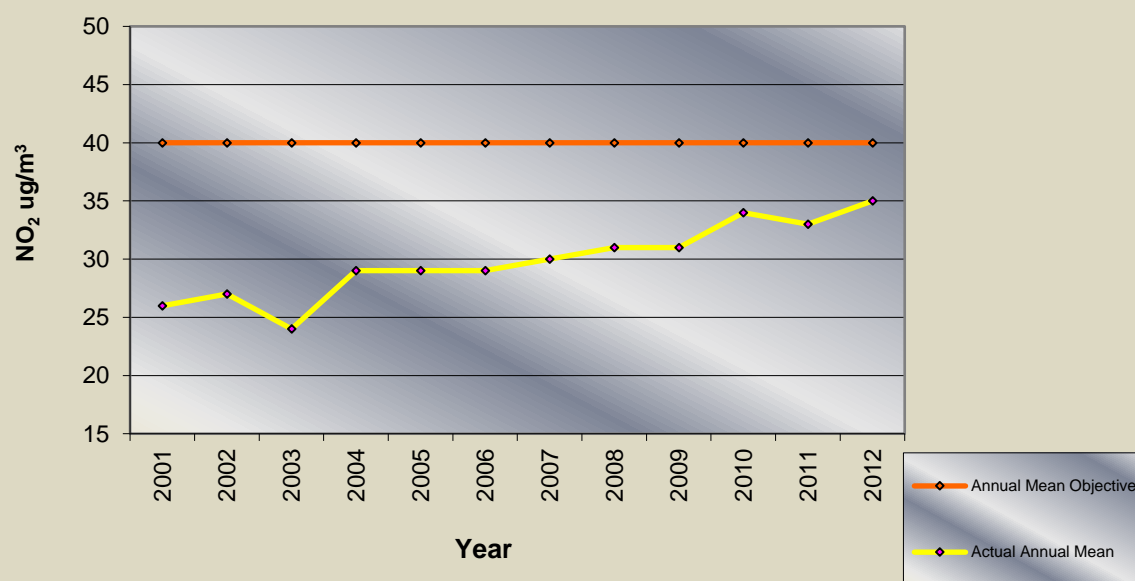
Site NA*S4 - High Street, Skipton**Site NA*S3 - Settle Down Café, Duke Street, Settle**

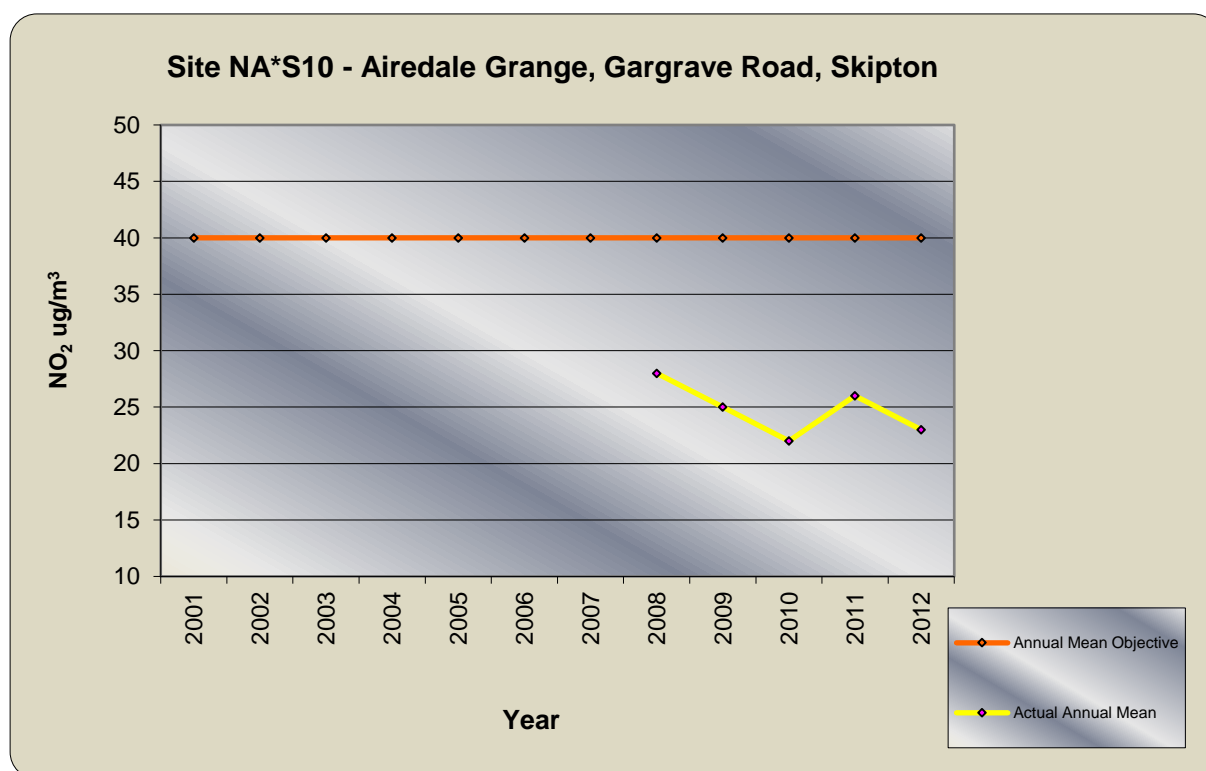
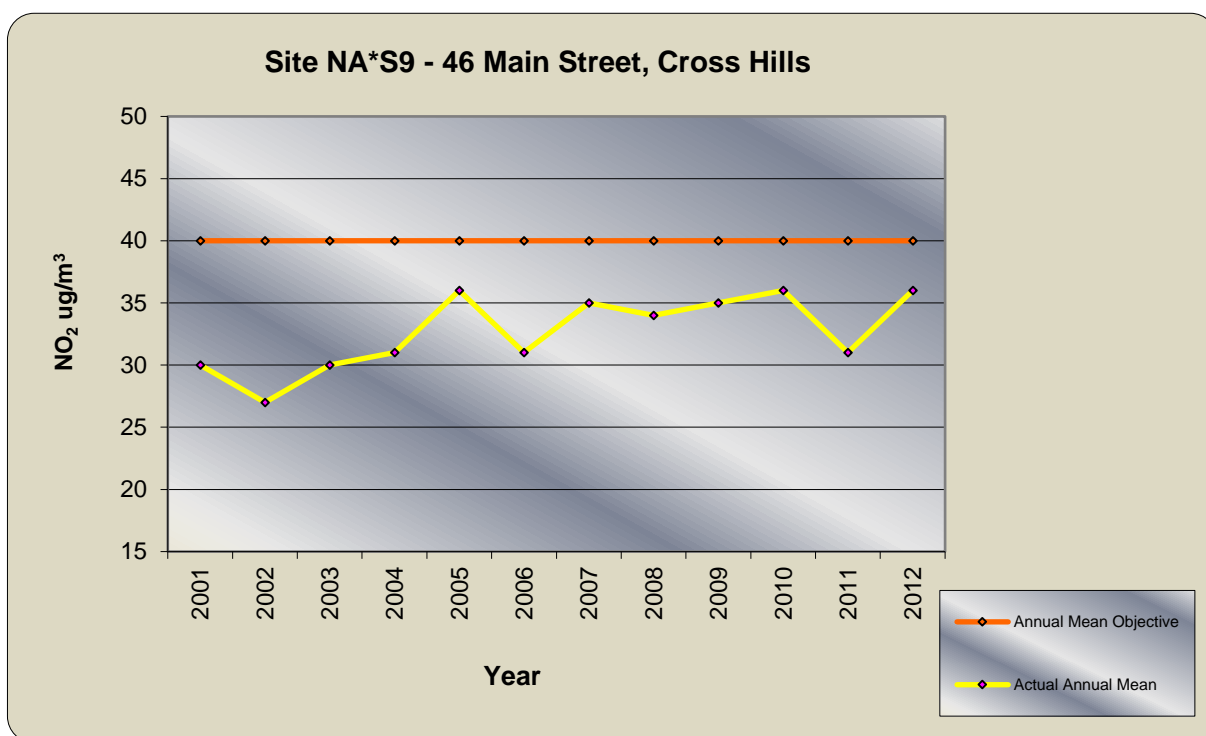
Site NA*S7 - 42 Keighley Road, Skipton



Site NA*S5 - E W Smith, 9 Newmarket Street, Skipton



Site NA*S6 - Yorkshire Housing, 60 Newmarket Street, Skipton**Site NA*S8 - 18 Station Road, Cross Hills**



Appendix B: Full Monthly Diffusion Tube Results for 2018

Table B.1 – NO₂ Monthly Diffusion Tube Results - 2018

| Site ID | NO ₂ Mean Concentrations (µg/m ³) | | | | | | | | | | | | Annual Mean | | |
|---------|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------------|--|---|
| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Raw Data | Bias Adjusted (0.92) and Annualised ⁽¹⁾ | Distance Corrected to Nearest Exposure ⁽²⁾ |
| | | | | | | | | | | | | | | | |
| 1 | 23.7 | 25.5 | 20.6 | 20.2 | 18.5 | 24.2 | 18.8 | 20.1 | 20.6 | 21.0 | 21.5 | 24.0 | 21.5 | 19.82 | - |
| 1b | 31.4 | 34.4 | 26.6 | 25.2 | 26.1 | 16.5 | 23.8 | 23.4 | 22.1 | 27.6 | 29.7 | 31.8 | 26.5 | 24.4 | - |
| 2 | 37.29 | 38.23 | 24.81 | 30.15 | 26.77 | 24.22 | 28.03 | 30.52 | 31.39 | 34.05 | 33.94 | 37.63 | 31.4 | 28.9 | - |
| 2b | 28.77 | 34.06 | 25.56 | 27.19 | 20.98 | 19.49 | 21.17 | 19.54 | 20.48 | 27.58 | 33.65 | 33.98 | 26.0 | 24.0 | - |
| 3 | 30.9 | 42.74 | 28.79 | 34.2 | 35.05 | 34.33 | 33.37 | 28.93 | 27.28 | 36.23 | 41.99 | 36.7 | 34.2 | 31.5 | |

- ☐ Local bias adjustment factor used
☒ National bias adjustment factor used
☐ Annualisation has been conducted where data capture is <75%
☐ Where applicable, data has been distance corrected for relevant exposure

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**.

(1) See Appendix C for details on bias adjustment and annualisation.

(2) Distance corrected to nearest relevant public exposure.

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

Diffusion Tube Bias Adjustment Factor

Craven District Council has made use of the National bias adjustment factor. The factor used takes into account the following aspects:

(i) Supplier

The diffusion tubes used in Craven are supplied and analysed by Gradko Environmental, St Martins House, 77 Wales Street, Winchester, Hampshire, S02 0RH.

(ii) Tube Type

20% TEA (triethanolamine) /WATER

(iii) Results from other local authorities using the same supplier and tube type i.e. Lancaster City Council

There are systematic differences in the performance of different laboratories and preparation methods of diffusion tubes. A spreadsheet provided by the LAQM Helpdesk (viewed at <http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html>) shows those figures for different local authorities using the same supplier and tube type and where diffusion tubes are co-located with automatic (continuous) monitors.

A copy of the relevant section of the table used to obtain the bias adjustment figure for this report provided by the LAQM Helpdesk is shown on the following page.

National Diffusion Tube Bias Adjustment Factor Spreadsheet Version 06/19

| National Diffusion Tube Bias Adjustment Factor Spreadsheet | | | | | | Spreadsheet Version Number: 06/19 | | | | |
|---|---|---|--|--|--------------------------|---|--|----------|-----------------------------|------------------------------------|
| <p>Follow the steps below <u>in the correct order</u> to show the results of <u>relevant</u> co-location studies</p> <p>Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods</p> <p>Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet</p> <p>This spreadsheet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.</p> <p>The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory.</p> <p>Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.</p> <p>This spreadsheet will be updated at the end of September 2019</p> <p>LAQM Helpdesk Website</p> | | | | | | | | | | |
| Step 1: | | Step 2: | Step 3: | Step 4: | | | | | | |
| Select the Laboratory that Analyses Your Tubes from the Drop-Down List | | Select a Preparation Method from the Drop-Down List | Select a Year from the Drop-Down List | Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor ³ shown in blue at the foot of the final column. | | | | | | |
| If a laboratory is not shown, we have no data for this laboratory. | | If a preparation method is not shown, we have no data for this method at this laboratory. | If a year is not shown, we have no data ² | If you have your own co-location study then see footnote ⁴ . If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@uk.bureauveritas.com or 0800 0327953 | | | | | | |
| Analysed By ¹ | Method To undo your selection, choose (All) from the pop-up list | Year ² To undo your selection, choose (All) | Site Type | Local Authority | Length of Study (months) | Diffusion Tube Mean Conc. (Dm) (µg/m ³) | Automatic Monitor Mean Conc. (Cm) (µg/m ³) | Bias (B) | Tube Precision ⁵ | Bias Adjustment Factor (A) (Cm/Dm) |
| Gradko | 20% TEA in water | 2018 | R | Gateshead Council | 9 | 40 | 41 | -1.8% | G | 1.02 |
| Gradko | 20% TEA in water | 2018 | R | Wokingham Borough Council | 12 | 38 | 33 | 13.2% | G | 0.88 |
| Gradko | 20% TEA in water | 2018 | R | Bath & North East Somerset | 12 | 40 | 39 | 4.0% | G | 0.96 |
| Gradko | 20% TEA in water | 2018 | R | Bedford Borough Council | 10 | 30 | 27 | 8.8% | G | 0.92 |
| Gradko | 20% TEA in water | 2018 | KS | Marylebone Road Intercomparison | 11 | 93 | 85 | 9.3% | G | 0.91 |
| Gradko | 20% TEA in water | 2018 | R | South Gloucestershire Council | 12 | 21 | 20 | 6.3% | G | 0.94 |
| Gradko | 20% TEA in water | 2018 | R | Thurrock Borough Council | 12 | 53 | 52 | 2.3% | S | 0.98 |
| Gradko | 20% TEA in water | 2018 | R | Thurrock Borough Council | 12 | 34 | 30 | 15.1% | G | 0.87 |
| Gradko | 20% TEA in water | 2018 | R | Thurrock Borough Council | 12 | 31 | 24 | 28.8% | G | 0.78 |
| Gradko | 20% TEA in water | 2018 | UB | Thurrock Borough Council | 12 | 27 | 25 | 9.2% | S | 0.92 |
| Gradko | 20% TEA in water | 2018 | UC | Belfast City Council | 12 | 32 | 27 | 16.4% | G | 0.86 |
| Gradko | 20% TEA in water | 2018 | R | City of Lincoln Council | 12 | 44 | 34 | 32.1% | G | 0.76 |
| Gradko | 20% TEA in water | 2018 | R | Lancaster City Council | 11 | 39 | 35 | 12.4% | G | 0.89 |
| Gradko | 20% TEA in water | 2018 | R | Lancaster City Council | 11 | 31 | 34 | -8.5% | G | 1.09 |
| Gradko | 20% TEA in water | 2018 | UB | Liverpool City Council | 12 | 20 | 18 | 11.0% | G | 0.90 |
| Gradko | 20% TEA in water | 2018 | R | Blackburn with Darwen Borough Council | 12 | 26 | 20 | 28.8% | G | 0.78 |
| Gradko | 20% TEA in water | 2018 | R | Dartford Borough Council | 11 | 50 | 48 | 4.3% | G | 0.96 |
| Gradko | 20% TEA in water | 2018 | | Overall Factor ³ (37 studies) | | | | | Use | 0.92 |

Annualisation

Data capture for all monitoring sites in this report was greater than 75%, therefore annualisation of the data was not necessary.

Distance Correction

The LAQM TG16¹⁰ guidance was updated in April 2018, this guidance advises that all monitoring locations should be representative of exposure and a distance correction should be applied where sites are not representative and record an annual mean concentration above the annual objective of 40ug/m³. Consideration must also be given to sites that are within 10% of this objective (i.e. above 36ug/m³).

Craven Districts monitoring sites are all representative and therefore a distance correction adjustment was not necessary.

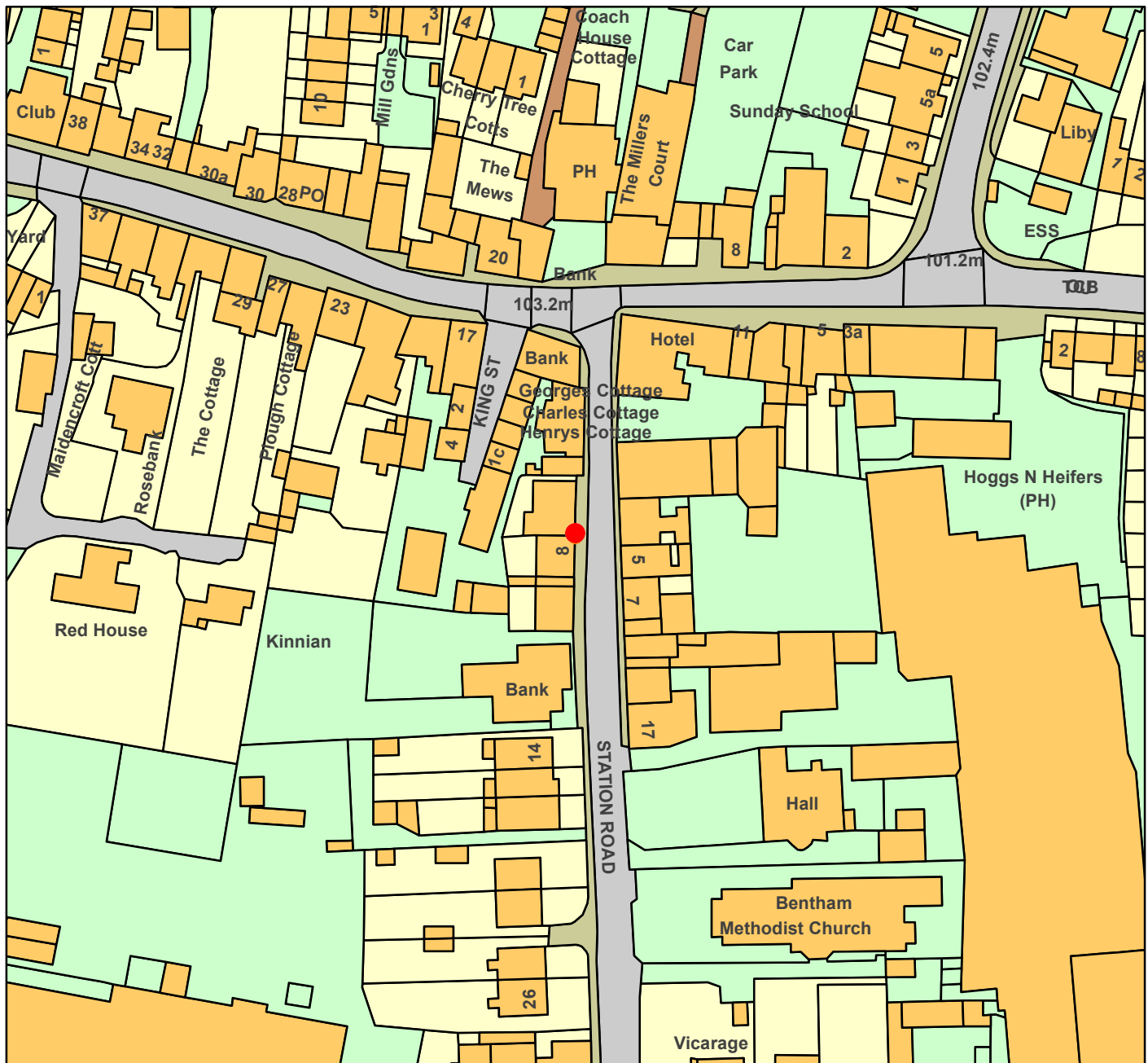
¹⁰ Defra Local Air Quality Management Technical Guidance (PG16), February 2018

Appendix D: Maps of Monitoring Locations and AQMAs Figure

D.1 Locations of Diffusion Tubes

NO_x DIFFUSION TUBE LOCATION

LOCATION: 1



● Location of diffusion tube 1

Scale: 1:1,250

| | |
|--------------|-------------------------|
| Organisation | Craven District Council |
| Department | ENVIRONMENTAL HEALTH |
| Comments | ROADSIDE 366749, 469197 |
| Date | 12/09/2019 |
| PSMA Number | 100024694 |

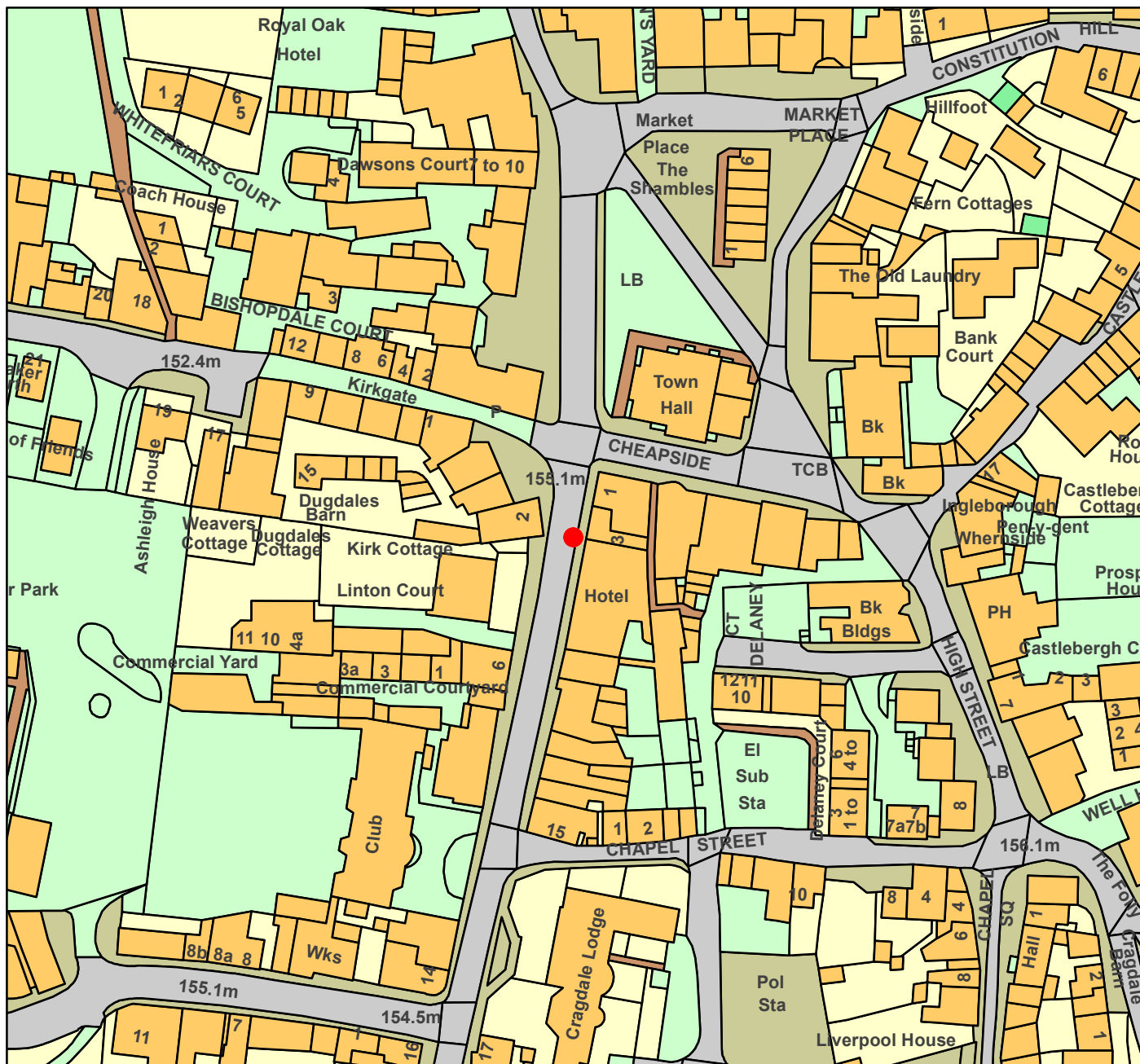


NOx DIFFUSION TUBE LOCATION

LOCATION: 1b



Craven
IN THE YORKSHIRE DALES
DISTRICT



● Location of diffusion tube 1b

Scale: 1:1,250



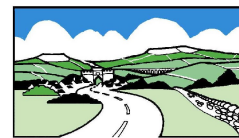
| | |
|--------------|-------------------------|
| Organisation | Craven District Council |
| Department | ENVIRONMENTAL HEALTH |
| Comments | ROADSIDE 381959, 463625 |
| Date | 12/09/2019 |
| PSMA Number | 100024694 |

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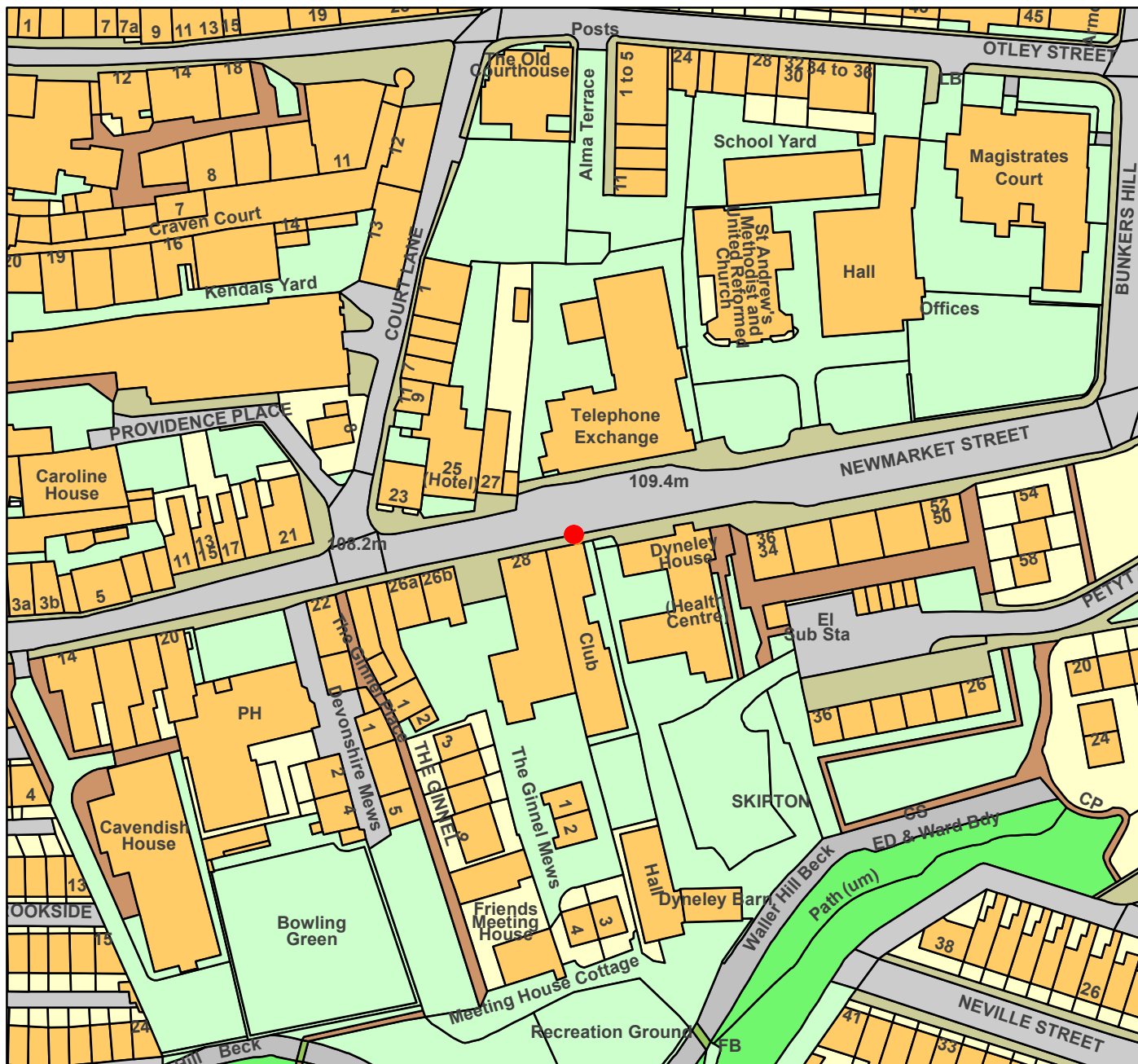
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NOx DIFFUSION TUBE LOCATION

LOCATION: 2



CRAVEN
IN THE YORKSHIRE DALES
DISTRICT



● Location of diffusion tube 2

Scale: 1:1,250



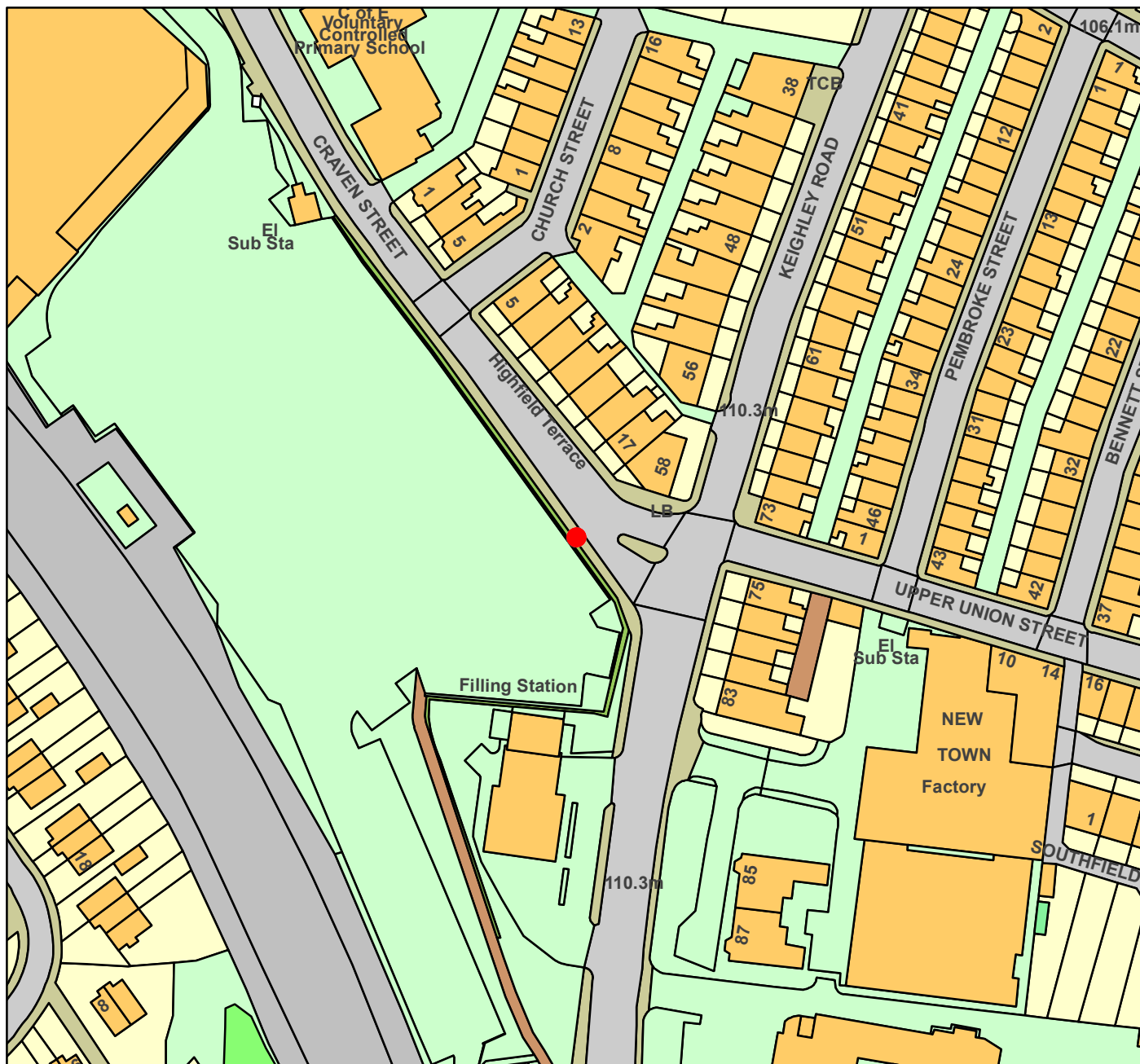
| | |
|--------------|-------------------------|
| Organisation | Craven District Council |
| Department | ENVIRONMENTAL HEALTH |
| Comments | ROADSIDE 399138, 451611 |
| Date | 12/09/2019 |
| PSMA Number | 100024694 |

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NO_x DIFFUSION TUBE LOCATION

LOCATION: 2b



● Location of diffusion tube 2b

Scale: 1:1,250



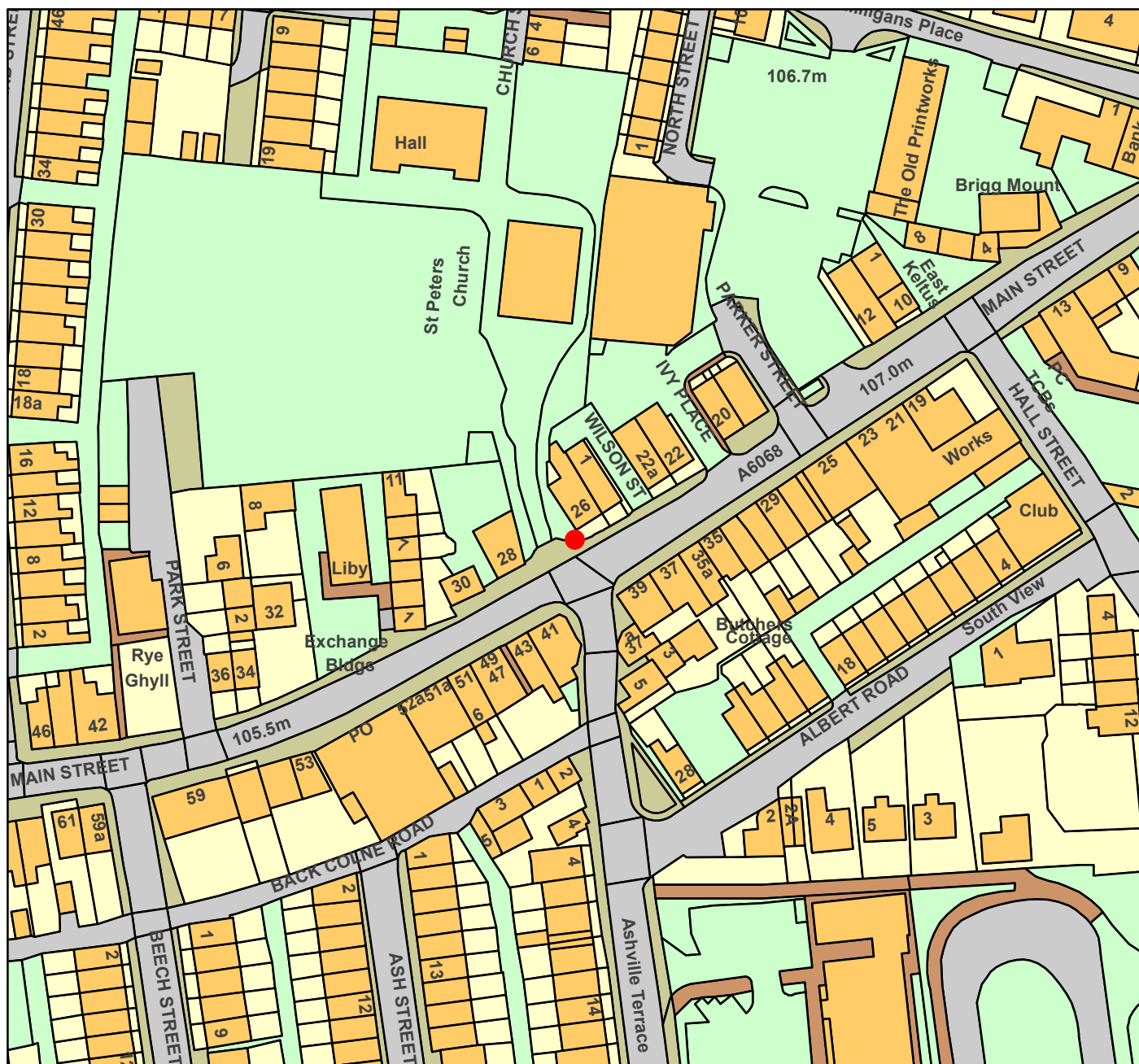
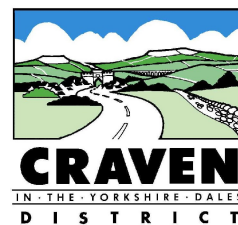
| | |
|--------------|-------------------------|
| Organisation | Craven District Council |
| Department | ENVIRONMENTAL HEALTH |
| Comments | ROADSIDE 398797,451178 |
| Date | 12/09/2019 |
| PSMA Number | 100024694 |

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NO_x DIFFUSION TUBE LOCATION

LOCATION: 3



● Location of diffusion tube 3

Scale: 1:1,250



| | |
|--------------|-------------------------|
| Organisation | Craven District Council |
| Department | ENVIRONMENTAL HEALTH |
| Comments | ROADSIDE 400628, 444998 |
| Date | 12/09/2019 |
| PSMA Number | 100024694 |

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Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England

| Pollutant | Air Quality Objectives ¹ | |
|--|--|----------------|
| | Concentration | Measured as |
| Nitrogen Dioxide (NO ₂) | 200 µg/m ³ not to be exceeded more than 18 times a year | 1-hour mean |
| | 40 µg/m ³ | Annual mean |
| Particulate Matter (PM ₁₀) | 50 µg/m ³ , not to be exceeded more than 35 times a year | 24-hour mean |
| | 40 µg/m ³ | Annual mean |
| Sulphur Dioxide (SO ₂) | 350 µg/m ³ , not to be exceeded more than 24 times a year | 1-hour mean |
| | 125 µg/m ³ , not to be exceeded more than 3 times a year | 24-hour mean |
| | 266 µg/m ³ , not to be exceeded more than 35 times a year | 15-minute mean |

¹ 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 | Air quality Annual Status Report |
| Defra | Department for Environment, Food and Rural Affairs |
| DMRB | Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England |
| 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 (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 |
| SO ₂ | Sulphur Dioxide |
| ... | ... |

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- Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006
- Defra. Abatement cost guidance for valuing changes in air quality, May 2013
- Defra Local Air Quality Management Policy Guidance (PG16), April 2016
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- Craven District Council, New Local Plan 29/03/19
- Yorkshire Dales National Park, Local Plan 2015-2030