



# **South Holland District Council**

Annual Progress Report 2024

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# 2024 Air Quality Annual Status Report (ASR)

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

Date: July 2024

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## Executive Summary: Air Quality in Our Area

### Air Quality in South Holland District Council

Breathing in polluted air affects our health and costs the NHS and our society billions of pounds each year. Air pollution is recognised as a contributing factor in the onset of heart disease and cancer and can cause a range of health impacts, including effects on lung function, exacerbation of asthma, increases in hospital admissions and mortality. In the UK, it is estimated that the reduction in healthy life expectancy caused by air pollution is equivalent to 29,000 to 43,000 deaths a year<sup>1</sup>.

Air pollution particularly affects the most vulnerable in society, children, the elderly, and those with existing heart and lung conditions. Additionally, people living in less affluent areas are most exposed to dangerous levels of air pollution<sup>2</sup>.

Table ES 1 provides a brief explanation of the key pollutants relevant to Local Air Quality Management and the kind of activities they might arise from.

**Table ES 1 - Description of Key Pollutants**

Pollutant	Description
Nitrogen Dioxide (NO <sub>2</sub> )	Nitrogen dioxide is a gas which is generally emitted from high-temperature combustion processes such as road transport or energy generation.
Sulphur Dioxide (SO <sub>2</sub> )	Sulphur dioxide (SO <sub>2</sub> ) is a corrosive gas which is predominantly produced from the combustion of coal or crude oil.
Particulate Matter (PM <sub>10</sub> and PM <sub>2.5</sub> )	<p>Particulate matter is everything in the air that is not a gas.</p> <p>Particles can come from natural sources such as pollen, as well as human made sources such as smoke from fires, emissions from industry and dust from tyres and brakes.</p> <p>PM<sub>10</sub> refers to particles under 10 micrometres. Fine particulate matter or PM<sub>2.5</sub> are particles under 2.5 micrometres.</p>

<sup>1</sup> UK Health Security Agency. Chemical Hazards and Poisons Report, Issue 28, 2022.

<sup>2</sup> Defra. Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

The main source of air pollution in South Holland district is road traffic emissions from major roads, notably the A16, A17 and A151, which connect South Holland with North Lincolnshire, the Humber estuary, and Southwest Lincolnshire. There are currently no Air Quality Management Areas (AQMAs) declared in South Holland.

To monitor air pollutant levels within the district, the Council has set up a monitoring network comprising two automatic analysers and 15 non-automatic (passive) samplers. The council's proactive approach to monitoring helps to ensure high data capture. When the potential for anomalous results is likely due to a loss of connection or the BAM tape breaking, the council has responded quickly by attending the to the units and troubleshooting and resolving the issue. This rapid response minimises data loss helping provide a clear picture of air quality in South Holland.

During 2023, 15 passive monitoring locations recorded a decrease in annual mean nitrogen dioxide (NO<sub>2</sub>) concentrations from 2022. All concentrations within 2023 were below the annual mean NO<sub>2</sub> AQS (Air Quality Strategy) objective of 40 µg/m<sup>3</sup> within South Holland. NO<sub>2</sub> concentrations at all passive monitoring locations have decreased. Monitoring site SH2 continues to report the highest concentrations within the monitoring network yet reports a decrease from 2022 to 2023 of 2.1 µg/m<sup>3</sup>.

At both automatic monitoring sites, concentrations of NO<sub>2</sub> and Particulate Matter <10µm (PM<sub>10</sub>) are well below the AQS objectives annual mean of 40 µg/m<sup>3</sup>. The maximum annual mean concentration of NO<sub>2</sub> was 8.2 µg/m<sup>3</sup> at site CM1, and the maximum annual mean PM<sub>10</sub> was 13.4 µg/m<sup>3</sup> at site CM2, both have decreased in comparison to 2022 values. For both pollutants, the number of exceedances of the AQS daily mean objectives have been consistently low at both sites for the last 5 years.

Ozone (O<sub>3</sub>) is continuously measured at the Westmere School automatic monitoring site. During 2023 the number of exceedances was 11. There is no LAQM air quality objective for O<sub>3</sub>, however this does exceed the UK National air quality objective of 100 µg/m<sup>3</sup> not to be exceeded more than 10 times a year. The number of exceedances has reduced from 20 recorded in 2022.

## Actions to Improve Air Quality

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

The Environmental Improvement Plan<sup>3</sup> sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term targets for fine particulate matter (PM<sub>2.5</sub>), the pollutant of most harmful to human health. The Air Quality Strategy<sup>4</sup> provides more information on local authorities' responsibilities to work towards these new targets and reduce fine particulate matter in their areas.

The Road to Zero<sup>5</sup> details the Government's approach to reduce exhaust emissions from road transport through a number of mechanisms, in balance with the needs of the local community. This is extremely important given that cars are the most popular mode of personal travel and the majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

## Conclusions and Priorities

In 2023, annual mean NO<sub>2</sub> concentrations at all monitoring locations in South Holland District continue to report well below the 40 µg/m<sup>3</sup> AQS objective, and continues compliance for the last 5 years. Annual mean NO<sub>2</sub> concentrations were recorded below 15 µg/m<sup>3</sup> at both automatic monitoring sites and below 31 µg/m<sup>3</sup> at all non-automatic monitoring sites. PM<sub>10</sub> concentrations continue to remain low and show consistency over the last 5 years.

South Holland District Council's priorities for the coming year include:

- Continued use of the current NO<sub>2</sub> diffusion tube monitoring network to identify any exceedances of the annual mean air quality objective and help identify areas of concern.
- Ensure new developments meet the requirements of planning policies and guidance in relation to air quality.

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<sup>3</sup> Defra. Environmental Improvement Plan 2023, January 2023

<sup>4</sup> Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

<sup>5</sup> DfT. The Road to Zero: Next steps towards cleaner road transport and delivering our Industrial Strategy, July 2018

- The Council will continue to support Lincolnshire County Council as the highways authority, where it can, to make road improvements that have potential to reduce emissions.
- Continue to support Lincolnshire Clean Air Project.

## **Local Engagement and How to get Involved**

South Holland District Council continues to promote a variety of actions that can be undertaken by everyone to help keep air pollution low, and protect their health when levels rise:

- Don't light a bonfire when pollution levels are high.
- Try to use your car less often – walk, cycle, or use public transport (cycling and walking are healthier for both the environment and you).
- Ask your employer, school, or college about developing a green travel plan.
- Do not drive your car when there are warnings of high air pollution. You will normally receive pollution warnings on your local regional news and weather forecast.

The South Holland air quality webpages can be found at <http://shollandair.aeat.com>. The website allows users to find out the latest pollution levels in South Holland, view data for individual automatic monitoring sites and find out more about air pollution.



## Local Responsibilities and Commitment

This ASR was prepared by the Bureau Veritas on behalf of South Holland District Council with the support and agreement of the following officers and departments:

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# 1 Local Air Quality Management

This report provides an overview of air quality in South Holland District Council during 2023. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995), as amended by the Environment Act (2021), and the relevant Policy and Technical Guidance documents.

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

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

## **2 Actions to Improve Air Quality**

### **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 should prepare an Air Quality Action Plan (AQAP) within 18 months. The AQAP should specify how air quality targets will be achieved and maintained, and provide dates by which measures will be carried out.

South Holland District Council currently does not have any declared AQMAs. A local Air Quality Strategy is under development to prevent and reduce polluting activities.

## 2.2 Progress and Impact of Measures to address Air Quality in South Holland District Council

Defra's appraisal of last year's ASR concluded:

1. Comments from previous ASR appraisals have been included and responded to. This is welcomed and encouraged for future reports.
2. The Council include some discussion on PM<sub>2.5</sub> in the district, despite not monitoring this pollutant, which is welcomed. The PHOF D01 indicator is a useful addition.
3. The council has included thorough discussion of trends. This level of detail is encouraged for future reports. The council note that there has been an increase in recorded concentrations over the last few years. It would be useful to include some discussion of why that is the case.
4. The council has included good quality graphs which aid the discussion of trends in the district.
5. The council has robust QA/QC procedure and have included all the relevant information and calculations in the report. However, the council should include a statement on whether the Defra calendar has been followed when deploying diffusion tubes throughout the year.
6. The Council has identified a number of planning applications that may impact air quality in the district. This is a useful inclusion in the report.
7. Table A.7 in the report is not in the excel file. The council should ensure that the excel file matches the report word document in future.
8. There are some instances where pollutant names are not subscripted correctly. Whilst this does not affect the readability of the report, the council should check future reports for such errors.
9. Overall, the report is clear, detailed and satisfies the appropriate criteria. The council should continue their good work into 2024.

South Holland District Council has taken forward a number of direct measures during the current reporting year of 2023 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.1. Five measures are included within Table 2.1, with the type of measure and the progress South Holland District Council

have made during the reporting year of 2023 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.1.

South Holland District Council continues to use its monitoring network to review air quality, and to ensure that all residents have access to safe levels of air quality. New monitoring locations are positioned where the Council believes there may be elevated concentrations of NO<sub>2</sub> in areas of relevant public exposure, alongside areas where monitoring has not previously been undertaken. This proactive nature ensures that the Council can identify areas of potential concern at the nearest possible opportunity so that if required, effective mitigation measures can be implemented. This ensures that compliant levels of air quality are available to all its residents.

The Council are also supporting the Lincolnshire Clean Air Project, which comprises a bid through the fully funded DEFRA Air Quality Grant Scheme totalling £58,180. This project involves working alongside the County Council, 6 other Local Authorities, and 2 businesses specialising in air quality monitoring and website design respectively (Clarity and Root Studio). The aim is to produce a public awareness campaign and to work with 8 Lincolnshire schools using air quality monitoring equipment to educate students, staff and parents on the causes of air pollution and how we can take action to reduce air pollution around our schools.

South Holland District Council continues to prioritise promoting public awareness in the community as a key measure. The intention from this is for the public to understand what activities influence air quality and minimise these activities, for example discouraging the use of bonfires. This leads to a well-informed public who can help manage their local air quality through the decisions they make and pass this knowledge on to ensure good air quality in South Holland for the future.



**Table 2.1 – Progress on Measures to Improve Air Quality**

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
1	Continue the roll out of green waste service and discourage the use of bonfires	Public Information	Other	N/A		SHDC		NO			Implementation	Reduced emissions from outdoor burning	Sign up rate, measured , tonnage green waste collected and formal actions on waste related burning	Implementation on-going since 2022, 12k signed up for garden waste collection, regular publicity continues	Limited number of people on the waiting list could hamper further viability.
2	Devise a communication plan to educate the public on the importance of looking after our air quality, and the potential health risks associated with poor air quality	Public Information	Via the Internet	N/A	2024	SHDC / SELCP	N/A	NO	Not Funded	<£10k	Planning	Increased public awareness leading to lower emissions from bonfires, wood burning stoves and vehicles	-	N/A	Low public engagement to date
3	Maintain a program of Environmental Permit inspections	Environmental Permits	Other	N/A		SHDC	Permit fee's & general fund	NO	Fully Funded	£10k - £50k	Implementation	Ensure operators use BAT	No. of permit inspections undertaken	Since 2022 a program of inspections has been produced and is being implemented.	

## 2.3 PM<sub>2.5</sub> – Local Authority Approach to Reducing Emissions and/or Concentrations

As detailed in Policy Guidance LAQM.PG22 (Chapter 8) and the Air Quality Strategy<sup>6</sup>, local authorities are expected to work towards reducing emissions and/or concentrations of fine particulate matter (PM<sub>2.5</sub>). There is clear evidence that PM<sub>2.5</sub> (particulate matter smaller 2.5 micrometres) has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

South Holland District Council is taking the following measures to address PM<sub>2.5</sub>:

South Holland District Council does not monitor for PM<sub>2.5</sub>, but the current Defra background maps for South Holland (2018 reference year) show that all 2023 background concentrations of PM<sub>2.5</sub> are far below the recommended annual mean AQS target for PM<sub>2.5</sub> of 20 µg/m<sup>3</sup> (8.5 µg/m<sup>3</sup>). The highest concentration is predicted to be 9.0 µg/m<sup>3</sup> within the 1km x 1km grid square with the centroid grid reference of 523500 308500. This is largely a rural area south of Crowland and includes the A16 and Peterborough Road South/ James Road roundabout.

The Public Health Outcomes Framework data tool compiled by Public Health England quantifies the mortality burden of PM<sub>2.5</sub> within England on a county and local authority scale. The 2022 fraction of mortality attributable to PM<sub>2.5</sub> pollution (indicator D01) within South Holland is 5.4%. This is lower than the regional average for the East Midlands (6.1%) and for England as a whole (5.8%). The most up to date data tool was used (May 2024) at time of writing.

The South East Lincolnshire Local Plan (2011 - 2036) adopted in March 2019 states:

**Policy 30: Pollution**

*“Development proposals will not be permitted where, taking account of any proposed mitigation measures, they would lead to unacceptable adverse impacts upon:*

1. *health and safety of the public;*

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<sup>6</sup> Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

2. *the amenities of the area; or*
3. *the natural, historic and built environment; by way of:*
4. *air quality, including fumes and odour;*
5. *noise including vibration;*
6. *light levels;*
7. *land quality and condition; or*
8. *surface and groundwater quality.”*

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

This section sets out the monitoring undertaken within 2023 by South Holland District Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2019 and 2023 to allow monitoring trends to be identified and discussed.

### 3.1 Summary of Monitoring Undertaken

#### 3.1.1 Automatic Monitoring Sites

South Holland District Council undertook automatic (continuous) monitoring at two sites during 2023. Table A.1 in Appendix A shows the details of the automatic monitoring sites. The [shollandair.aeat.com](http://shollandair.aeat.com) page presents automatic monitoring results for South Holland District Council, with automatic monitoring results also available through the UK-Air website.

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

#### 3.1.2 Non-Automatic Monitoring Sites

South Holland District Council undertook non- automatic (i.e. passive) monitoring of NO<sub>2</sub> at 15 sites during 2023, with 19 individual passive monitoring tubes. Table A.2 in Appendix A presents the details of the non-automatic sites.

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

## 3.2 Individual Pollutants

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

### 3.2.1 Nitrogen Dioxide (NO<sub>2</sub>)

Table A.3 and Table A.4 in Appendix A compare the ratified and adjusted monitored NO<sub>2</sub> annual mean concentrations for the past five years with the air quality objective of 40µg/m<sup>3</sup>. Note that the concentration data presented represents the concentration at the location of the monitoring site, following the application of bias adjustment and annualisation, as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

For diffusion tubes, the full 2023 dataset of monthly mean values is provided in Appendix B. Note that the concentration data presented in Table B.1 includes distance corrected values, only where relevant.

Table A.5 in Appendix A compares the ratified continuous monitored NO<sub>2</sub> hourly mean concentrations for the past five years with the air quality objective of 200µg/m<sup>3</sup>, not to be exceeded more than 18 times per year.

Both automatic monitors report compliance to the NO<sub>2</sub> AQS objective.

During 2023, all diffusion tube monitoring locations continued to report NO<sub>2</sub> concentrations compliant with the NO<sub>2</sub> AQS objective, with no reported exceedances in the last 5 years.

From 2022 – 2023, all sites recorded a decrease in NO<sub>2</sub> concentrations, with an average decrease of 1.87 µg/m<sup>3</sup>. Figure A.1 – Figure A.3 present graphs showing the annual mean NO<sub>2</sub> concentrations from 2019 to 2023. From 2019-20 there is a notable decrease in NO<sub>2</sub> concentrations from monitored results likely attributed to the reduction in activities due to the COVID-19 pandemic, averaging a 3.28 µg/m<sup>3</sup> across all sites. Following this, a slight increase of concentrations over the next two year occurred based on monitoring data, totalling 2.16 µg/m<sup>3</sup> from 2020-22. With the decrease across all sites in 2023, over the 5-year monitoring period the total average decrease in NO<sub>2</sub> concentrations across all sites is 2.99 µg/m<sup>3</sup>.

The maximum concentration of 30.1 µg/m<sup>3</sup> is reported at triplicate site SH2a, SH2b and SH2c; this passive monitoring location on Winsover Road, Spalding, continues to report

the highest concentration within the network, but remains below the AQS objective. The 2023 concentration at this site is now over 6% below pandemic levels in 2019.

Location SH2a, SH2b & SH2c is located close to a level crossing. There is increasing freight traffic being carried on the railway, which has resulted in the crossing being in use for more extended periods. Location SH6 which displays higher concentrations is adjacent to the main A17, one of the busiest roads in the district yet at this site is the joint-largest decrease in concentrations.

In accordance with Defra guidance, as annual mean concentrations are well below 60  $\mu\text{g}/\text{m}^3$  at all sites, it is unlikely that any exceedances of the 1-hour mean objective has occurred at any site.

### 3.2.2 Particulate Matter (PM<sub>10</sub>)

Table A.6 in Appendix A: Monitoring Results compares the ratified and adjusted monitored PM<sub>10</sub> annual mean concentrations for the past five years with the annual mean air quality objective of 40 $\mu\text{g}/\text{m}^3$ .

Table A.7 in Appendix A compares the ratified continuous monitored PM<sub>10</sub> daily mean concentrations for the past five years with the 24 hour air quality objective of 50 $\mu\text{g}/\text{m}^3$ , not to be exceeded more than 35 times per year.

Compliance of both the annual mean PM<sub>10</sub> AQS objective (40  $\mu\text{g}/\text{m}^3$ ) and 24-hour PM<sub>10</sub> AQS objective (no more than 35 24-hourly concentrations greater than 50  $\mu\text{g}/\text{m}^3$ ) has been achieved in 2023 at both automatic monitoring locations.

Over the last 5 years of annual PM<sub>10</sub> monitoring, PM<sub>10</sub> concentrations have remained consistent at both Spalding Monkhouse and Westmere School urban background sites. Both sites recorded small changes between 2022 and 2023, with a slight decrease at the Spalding Monkhouse School site of 0.6  $\mu\text{g}/\text{m}^3$ , and 1.1  $\mu\text{g}/\text{m}^3$  at Westmere School.

The 24-hour mean PM<sub>10</sub> monitoring for 2023 shows no exceedances of the 50  $\mu\text{g}/\text{m}^3$  AQS objective, which continues the same trend over the last 5 years of monitoring.

### 3.2.3 Ozone (O<sub>3</sub>)

Table A.8 in Appendix A compares the ratified continuous monitored O<sub>3</sub> concentrations in 2022 for O<sub>3</sub>.

The number of 8-hour mean O<sub>3</sub> concentrations greater than 100  $\mu\text{g}/\text{m}^3$  reported at the Westmere School automatic monitoring location in 2023 was 11. There is no LAQM air

quality objective for O<sub>3</sub>, however this does exceed the UK National air quality objective of 100 µg/m<sup>3</sup> not to be exceeded more than 10 times a year.

There are no major emission sources of ozone in the UK. Ozone is formed due to chemical reactions in the presence of sunlight and is generally higher in rural areas that have less pollutants in the air than urban areas. Ozone levels nationally have been increasing in rural areas since 2017, and although the levels do fluctuate, the hot dry summer weather of 2022 may have contributed to the increase for that year.

Further information regarding UK air quality ozone concentrations can be found [here](#).

## Appendix A: Monitoring Results

**Table A.1 – Details of Automatic Monitoring Sites**

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Inlet Height (m)
CM1	Spalding Monkhouse School	Urban Background	523174	322455	NO <sub>2</sub> , PM <sub>10</sub>	N/A	Chemiluminescence, TEOM corrected by VCM	1	25	3
CM2	Westmere School	Urban Background	547269	321718	NO <sub>2</sub> , O <sub>3</sub> , PM <sub>10</sub>	N/A	Chemiluminescence, UV Absorption, TEOM corrected by VCM	14	190	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**

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Tube Co-located with a Continuous Analyser?	Tube Height (m)
SH1	21 Millfield	Urban Background	524388	310520	NO <sub>2</sub>	N/A	6.8	0.3	No	1.9
SH2a, SH2b, SH2c	Winsover Road	Urban Background	524292	322587	NO <sub>2</sub>	N/A	0.0	1.3	No	2.6
SH3	Woodfield Close	Urban Background	525694	321999	NO <sub>2</sub>	N/A	7.0	1.7	No	2.1
SH4	46 The Hollies	Urban Background	536523	325078	NO <sub>2</sub>	N/A	8.4	1.4	No	2.2
SH5	Station Road	Roadside	526585	328726	NO <sub>2</sub>	N/A	24.9	1.1	No	2.1
SH6	Boston Road A17	Roadside	535525	325589	NO <sub>2</sub>	N/A	4.0	1.8	No	2.1
SH7	Field End A17	Roadside	541013	324393	NO <sub>2</sub>	N/A	9.0	2.1	No	2.1
SH8a, SH8b, SH8c	Westmere	Urban Background	547264	321709	NO <sub>2</sub>	N/A	69.4	61.2	Yes	N/A
SH11	Donington A52	Roadside	520932	336052	NO <sub>2</sub>	N/A	49.0	1.5	No	2.1
SH13	Pinchbeck Road	Kerbside	524595	323793	NO <sub>2</sub>	N/A	20.7	2.0	No	2.1
SH19 (Former 14)	Whaplode	Roadside	532684	324311	NO <sub>2</sub>	N/A	7.0	4.0	No	1.9
SH15	Pinchbeck	Roadside	524182	325804	NO <sub>2</sub>	N/A	12.0	1.7	No	2.0

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Tube Co-located with a Continuous Analyser?	Tube Height (m)
SH16	Gosberton	Roadside	524203	331510	NO <sub>2</sub>	N/A	7.0	1.9	No	2.2
SH17	High Street	Roadside	524892	322571	NO <sub>2</sub>	N/A	0.0	0.9	No	1.9
SH18	BP Garage	Roadside	524191	321328	NO <sub>2</sub>	N/A	1.5	3.9	No	2.1

**Notes:**

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

(2) N/A if not applicable.

**Table A.3 – Annual Mean NO<sub>2</sub> Monitoring Results: Automatic Monitoring (µg/m<sup>3</sup>)**

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2023 (%) <sup>(2)</sup>	2019	2020	2021	2022	2023
CM1	523174	322455	Urban Background	99.2	99.2	9.3	8.5	8.7	8.9	8.2
CM2	547269	321718	Urban Background	92.1	92.1	9.3	7.7	7.4	7.8	6.8

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

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

Where exceedances of the NO<sub>2</sub> annual mean objective occur at locations not representative of relevant exposure, the fall-off with distance concentration has been calculated and reported concentration provided in brackets for 2023 .

#### Notes:

The annual mean concentrations are presented as µg/m<sup>3</sup>.

Exceedances of the NO<sub>2</sub> annual mean objective of 40µg/m<sup>3</sup> are shown in **bold**.

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

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

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

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

**Table A.4 – Annual Mean NO<sub>2</sub> Monitoring Results: Non-Automatic Monitoring (µg/m<sup>3</sup>)**

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2023 (%) <sup>(2)</sup>	2019	2020	2021	2022	2023
SH1	524388	310520	Urban Background	100	100.0	10.3	8.9	8.8	9.7	8.3
SH2a, SH2b, SH2c	524292	322587	Urban Background	100	100.0	32.1	27.6	29.8	32.2	30.1
SH3	525694	321999	Urban Background	100	100.0	11.0	9.4	9.7	10.7	9.0
SH4	536523	325078	Urban Background	100	100.0	10.1	8.9	8.7	9.6	8.2
SH5	526585	328726	Roadside	92.3	92.3	12.8	11.0	11.6	12.1	11.1
SH6	535525	325589	Roadside	100	100.0	27.9	20.9	23.8	27.6	24.3
SH7	541013	324393	Roadside	100	100.0	26.4	20.0	19.5	21.6	18.3
SH8a, SH8b, SH8c	547264	321709	Urban Background	100	100.0	9.6	8.1	7.3	7.9	6.8
SH11	520932	336052	Roadside	100	100.0	15.5	12.7	14.3	14.4	13.6
SH13	524595	323793	Kerbside	100	100.0	25.7	21.9	24.0	25.9	23.8
SH19 (Former 14)	532684	324311	Roadside	100	100.0	16.3	13.4	14.5	14.5	13.1
SH15	524182	325804	Roadside	100	100.0	22.3	17.6	19.9	19.6	17.5
SH16	524203	331510	Roadside	100	100.0	17.0	12.1	13.4	13.6	12.3

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2023 (%) <sup>(2)</sup>	2019	2020	2021	2022	2023
SH17	524892	322571	Roadside	92.3	92.3	20.3	18.7	19.0	22.2	19.6
SH18	524191	321328	Roadside	92.3	92.3	19.8	16.7	17.3	18.7	16.3

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

Diffusion tube data has been bias adjusted.

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

#### Notes:

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

Exceedances of the NO<sub>2</sub> annual mean objective of  $40\mu\text{g}/\text{m}^3$  are shown in **bold**.

NO<sub>2</sub> annual means exceeding  $60\mu\text{g}/\text{m}^3$ , indicating a potential exceedance of the NO<sub>2</sub> 1-hour mean objective are shown in **bold and underlined**.

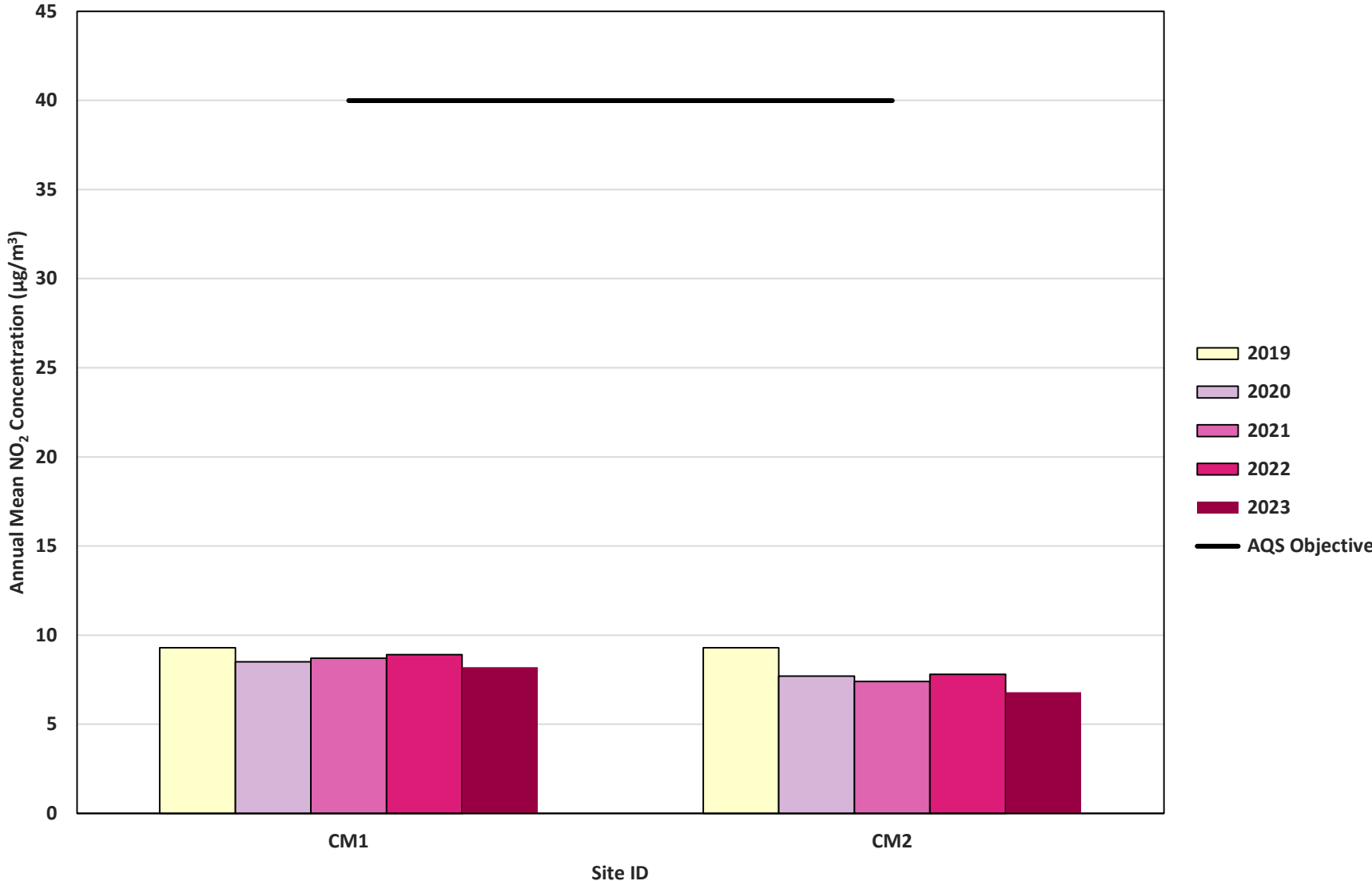
Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

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

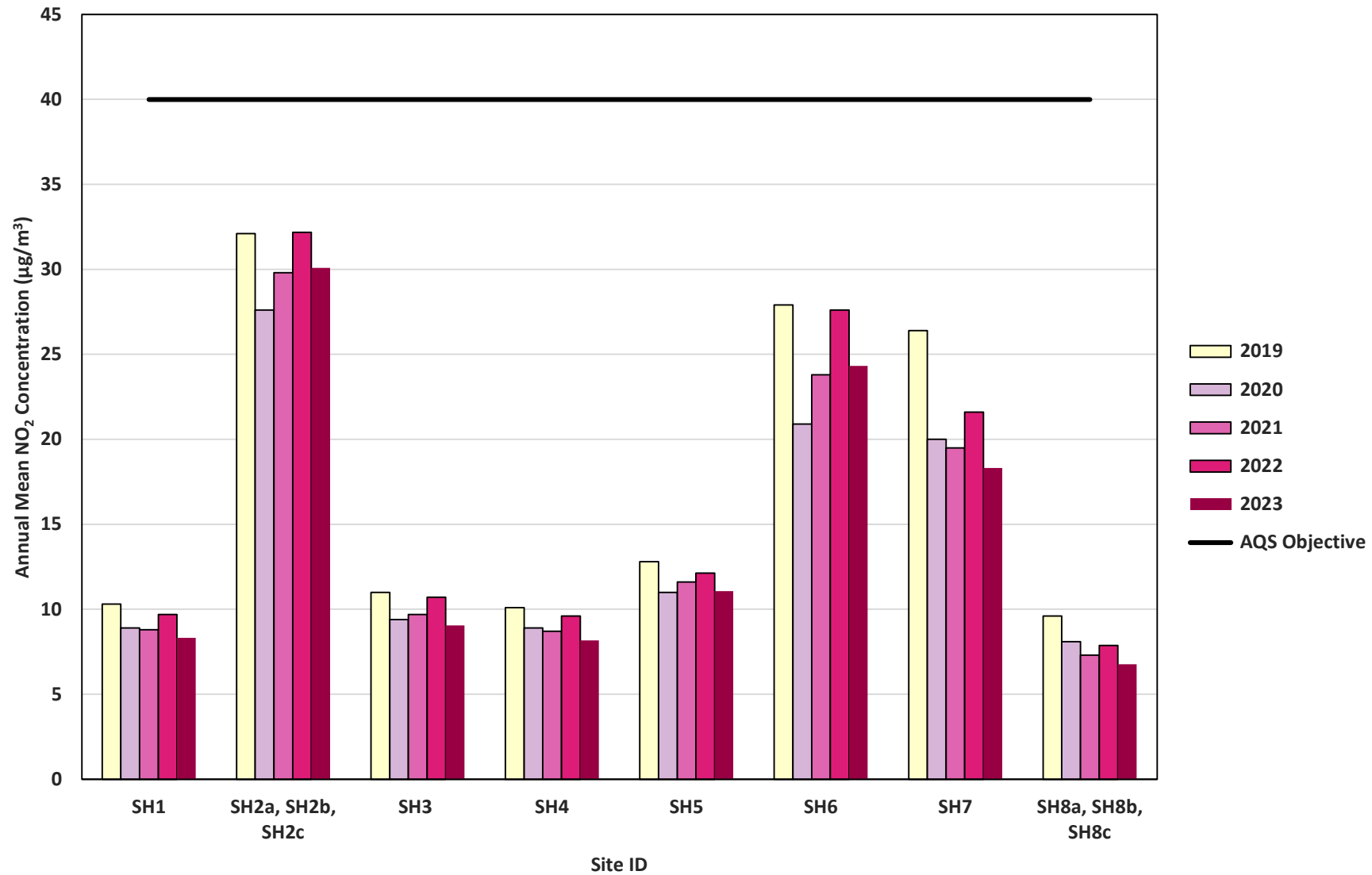
(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

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

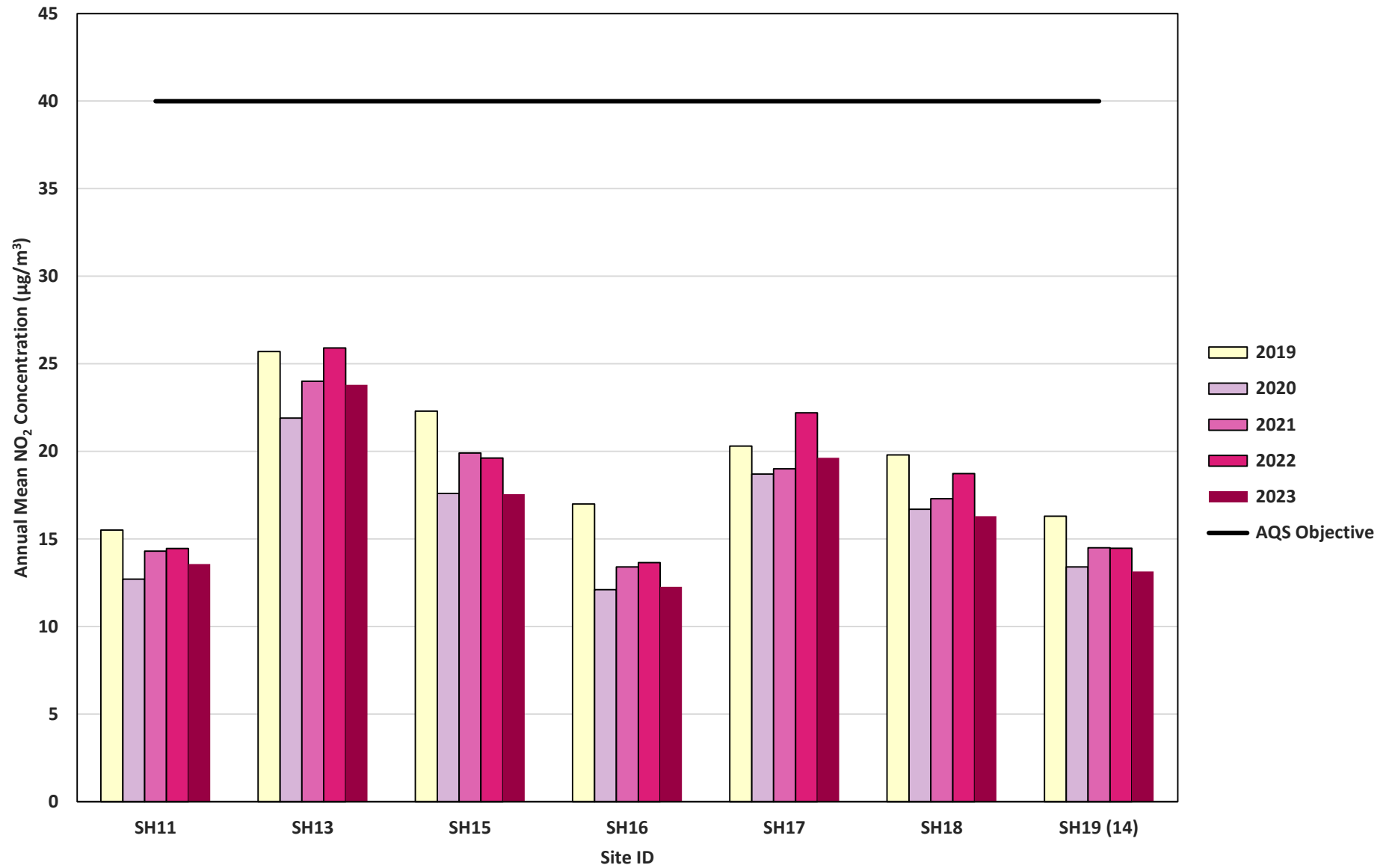
**Figure A.1 – Trends in Annual Mean NO<sub>2</sub> Concentrations – Automatic Sites**



**Figure A.2 – Trends in Annual Mean NO<sub>2</sub> Concentrations – Crowland, Holbeach, Spalding and Surfleet Seas End**



**Figure A.3 – Trends in Annual Mean NO<sub>2</sub> Concentrations – Donington, Gosberton, Pinchbeck, Spalding and Whaplode**





**Table A.5 – 1-Hour Mean NO<sub>2</sub> Monitoring Results, Number of 1-Hour Means > 200µg/m<sup>3</sup>**

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2023 (%) <sup>(2)</sup>	2019	2020	2021	2022	2023
CM1	523174	322455	Urban Background	99.2	99.2	0	0	0	0	0
CM2	547269	321718	Urban Background	92.1	92.1	0	0	0	0	0

**Notes:**

Results are presented as the number of 1-hour periods where concentrations greater than 200µg/m<sup>3</sup> have been recorded.

Exceedances of the NO<sub>2</sub> 1-hour mean objective (200µg/m<sup>3</sup> 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%).

**Table A.6 – Annual Mean PM<sub>10</sub> Monitoring Results (µg/m<sup>3</sup>)**

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2023 (%) <sup>(2)</sup>	2019	2020	2021	2022	2023
CM1	523174	322455	Urban Background	96.0	96.0	13.7	10.9	9.0	11.5	10.9
CM2	547269	321718	Urban Background	98.5	98.5	14.2	12.9	12.6	14.5	13.4

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

**Notes:**

The annual mean concentrations are presented as µg/m<sup>3</sup>.

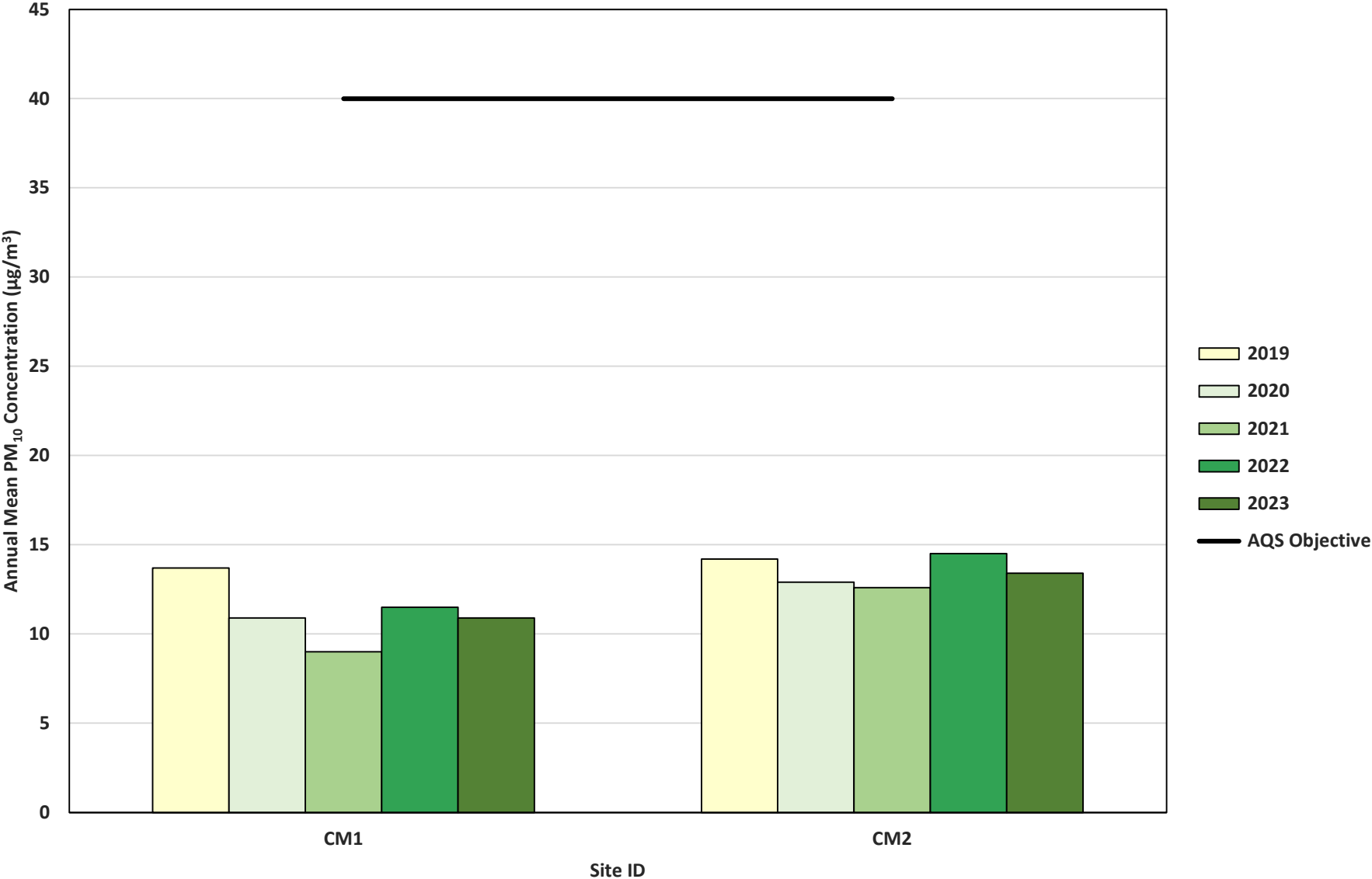
Exceedances of the PM<sub>10</sub> annual mean objective of 40µg/m<sup>3</sup> are shown in **bold**.

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

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

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

Figure A.4 – Trends in Annual Mean PM<sub>10</sub> Concentrations



**Table A.7 – 24-Hour Mean PM<sub>10</sub> Monitoring Results, Number of PM<sub>10</sub> 24-Hour Means > 50µg/m<sup>3</sup>**

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2023 (%) <sup>(2)</sup>	2019	2020	2021	2022	2023
CM1	523174	322455	Urban Background	98.4	98.4	0	0	<b>0</b>	0	0
CM2	547269	321718	Urban Background	100	100	0	0	0	0	0

**Notes:**

Results are presented as the number of 24-hour periods where daily mean concentrations greater than 50µg/m<sup>3</sup> have been recorded.

Exceedances of the PM<sub>10</sub> 24-hour mean objective (50µg/m<sup>3</sup> not to be exceeded more than 35 times/year) are shown in **bold**.

If the period of valid data is less than 85%, the 90.4th percentile of 24-hour means is provided in brackets.

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

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

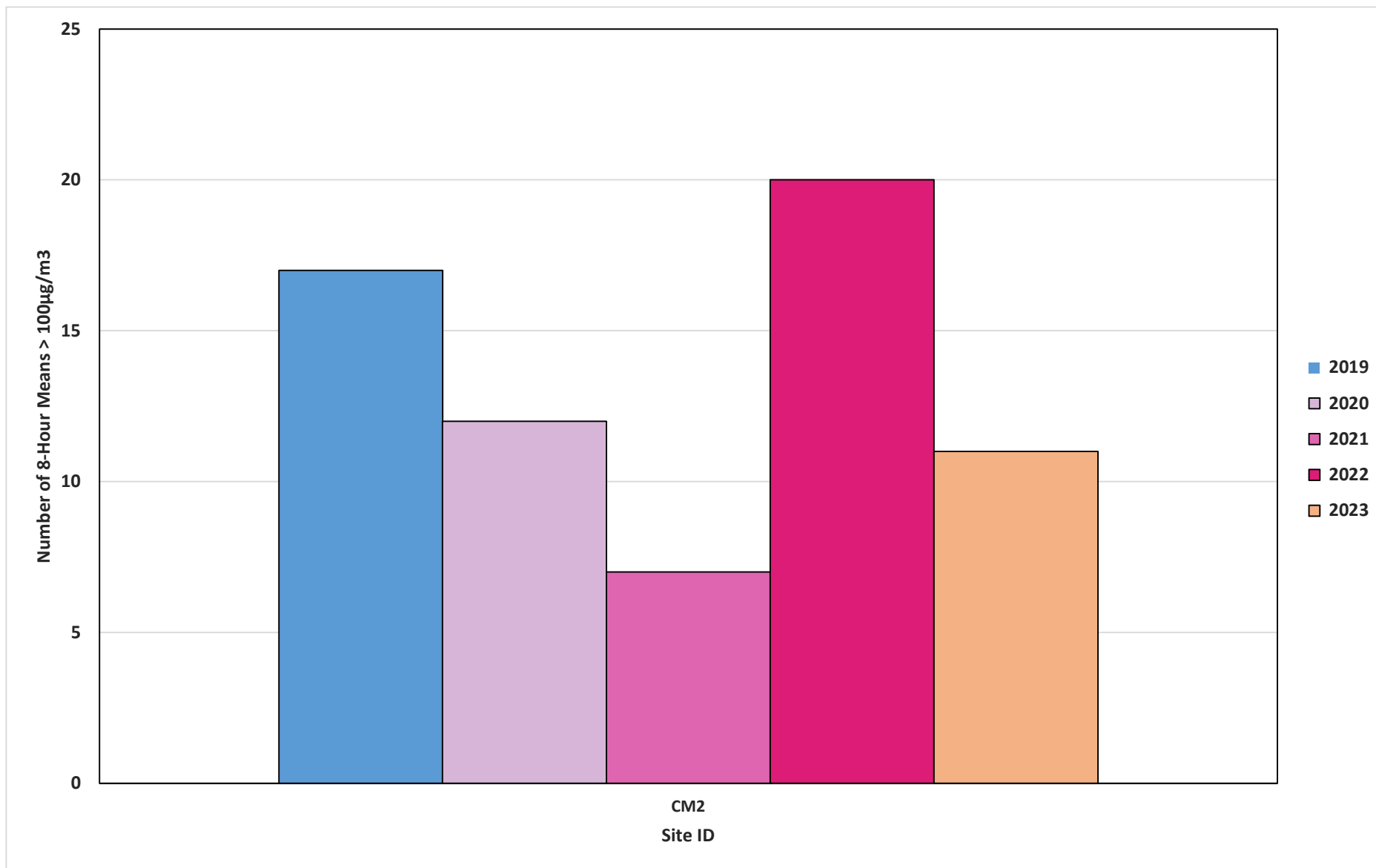
**Table A.8 – O<sub>3</sub> Monitoring Results, number of 8-hour mean O<sub>3</sub> concentrations greater than 100 µg/m<sup>3</sup>**

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2023 (%) <sup>(2)</sup>	2019	2020	2021	2022	2023
CM2	547269	321718	Urban Background	98.0	98.0	17	12	7	20	11

**Notes:**

- (1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
- (2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

**Figure A.3 – Trends in number of 8-hour mean O<sub>3</sub> concentrations greater than 100 µg/m<sup>3</sup>**



## Appendix B: Full Monthly Diffusion Tube Results for 2023

**Table B.1 – NO<sub>2</sub> 2023 Diffusion Tube Results (µg/m<sup>3</sup>)**

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 <0.89>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
SH1	524388	310520	16.5	8.6	10.1	7.7	6.3	5.6	6.2	6.3	9.2	9.8	14.9	11.0	9.4	8.3	-	
SH2a	524292	322587	39.4	20.1	35.8	34.1	33.7	32.7	29.7	30.5	41.4	34.9	34.1	33.1	-	-	-	Triplicate Site with SH2a, SH2b and SH2c - Annual data provided for SH2c only
SH2b	524292	322587	41.1	23.1	35.3	34.7	32.6	34.6	27.8	30.5	40.2	36.8	35.6		-	-	-	Triplicate Site with SH2a, SH2b and SH2c - Annual data provided for SH2c only
SH2c	524292	322587	41.1	31.5	35.0	35.3	33.7	33.9	27.6	30.8	40.3	38.1	29.3	34.6	33.8	30.1	-	Triplicate Site with SH2a, SH2b and SH2c - Annual data provided for SH2c only
SH3	525694	321999	17.1	8.0	10.8	9.0	6.1	5.7	7.5	7.9	9.6	12.7	16.2	11.3	10.2	9.0	-	
SH4	536523	325078	15.8	10.3	9.4	7.6	5.8	5.2	6.0	6.4	7.5	10.5	14.4	11.3	9.2	8.2	-	
SH5	526585	328726	18.5	12.7	13.5	9.7	9.6	9.6	10.0	10.9	11.6	13.4	17.2		12.4	11.1	-	
SH6	535525	325589	35.5	22.2	28.9	31.2	33.6	28.6	21.1	25.6	24.7	25.3	27.4	23.6	27.3	24.3	-	
SH7	541013	324393	25.6	13.4	19.5	22.7	17.4	16.3	20.2	21.9	25.1	20.2	25.3	19.4	20.6	18.3	-	
SH8a	547264	321709	13.1	9.3	8.6	6.5	3.8	3.9	4.7	5.4	6.9	9.5	12.3	9.7	-	-	-	Triplicate Site with SH8a, SH8b and SH8c - Annual data provided for SH8c only
SH8b	547264	321709	12.3	9.2	8.4	6.4	3.6	3.9	4.7	5.2	6.8	8.9	11.5	8.4	-	-	-	Triplicate Site with SH8a, SH8b and SH8c - Annual data provided for SH8c only
SH8c	547264	321709	13.7	7.5	8.6	6.2		4.3	4.8	5.3	6.7	9.2	11.7		7.6	6.8	-	Triplicate Site with SH8a, SH8b and SH8c - Annual data provided for SH8c only
SH11	520932	336052	19.3	9.3	16.2	15.4	13.4	15.4	12.4	13.4	17.4	18.0	18.1	14.5	15.2	13.6	-	
SH13	524595	323793	39.0	21.1	30.7	24.1	21.2	19.4	23.8	21.6	28.3	30.9	33.1	27.8	26.7	23.8	-	
SH19 (Former 14)	532684	324311	22.5	9.8	14.3	14.9	12.8	10.6	12.2	14.1	15.1	15.9	18.9	16.1	14.8	13.1	-	
SH15	524182	325804	27.2	11.6	21.1	19.5	19.3	16.3	15.7	15.6	21.9	23.7	26.0	18.7	19.7	17.5	-	
SH16	524203	331510	19.5	10.8	14.3	13.9	13.0	11.2	10.8	10.2	12.2	17.7	19.2	12.6	13.8	12.3	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted <0.89>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
SH17	524892	322571	26.4	17.9	26.6	24.0	19.0	18.2	18.5	18.2	25.3	24.4	24.1		22.1	19.6	-	
SH18	524191	321328		14.1	21.4	17.8	14.3	13.7	15.8	16.2	19.9	21.2	25.9	21.0	18.3	16.3	-	

- All erroneous data has been removed from the NO<sub>2</sub> 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.
- South Holland District Council confirm that all 2023 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.

**Notes:**

Exceedances of the NO<sub>2</sub> annual mean objective of 40µg/m<sup>3</sup> are shown in **bold**.

NO<sub>2</sub> annual means exceeding 60µg/m<sup>3</sup>, indicating a potential exceedance of the NO<sub>2</sub> 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 South Holland District Council During 2023

List of Applications for PS2 Categories (Reference, Type, Category, Location, Date Accepted, Description)
<p>H06-0161-23 FULL Major Sml Other ONSLOW FARMONSLOW LANE 17-02-23</p> <p>Temporary accommodation facilities for student farm workers including 20 accommodation units, shower/toilet block and kitchen and recreational facilities - renewal of H06-1204-19</p>
<p>H07-0173-23 FULL Major Lrg Other Land at West Drove Gedney Hill 10-03-23</p> <p>Proposed change of use from agricultural land to equestrian including amenities, stable block and tractor shed</p>
<p>H11-0128-23 FULL Major Sml Ind Storag Land to Rear of 45-47 Bridge Road Long Sutton 08-02-23</p> <p>Demolition of existing commercial buildings and erection of new office, admin buildings and workshops (B2) to accommodate the relocation of Tears Recovery</p>
<p>H09-0132-23 FULL Major Lrg Other Land North of Roman Bank and East of Middle Marsh Road at Red House Farm 07-02-23</p> <p>Proposed construction and operation of a 48MW solar farm comprising ground mounted solar photovoltaic arrays together with associated infrastructure and landscaping</p>
<p>H16-0136-23 FULL Major Sml Dwelling Ivanda Nursery Monks House Lane 13-02-23</p> <p>Proposed residential development of 70 dwellings, including demolition of existing glass houses</p>

<b>List of Applications for PS2 Categories (Reference, Type, Category, Location, Date Accepted, Description)</b>	
H14-0836-23 FULL Major Lrg Ind Storag Adj The Anglia Business Centre Mill Green Road 22-09-23	Use of land for siting of additional self-store containers
H11-0842-23 FULL Major Sml Dwelling Land off Lime Walk Long Sutton 27-09-23	Residential development comprising 48 dwellings - re-submission of H11-0994-22
H11-0045-23 S73A CONTINUATION Major Sml Dwelling Land West McDonald's Restaurant Vicarage Lane 07-02-23	Mixed use development comprising of static caravans, cottages, fishing lake, site office, workshop and caravan sales - approved under H11-0420-18. Modification of Condition 2 to allow amendments to previously approved plans and Condition 5 to allow the maximum number of static caravans on site not to exceed 52
H15-0436-23 FULL Major Sml Dwelling Land Off St Margarets Quadring 30-05-23	Residential Development Comprising 29 Dwellings - re-submission of H15-1066-21
H23-0471-23 FULL Major Sml Dwelling BLEU RAYE FARMMILLGATE 18-05-23	Erection of 19 holiday lodges, reception building, facility managers accommodation & maintenance shed, 2 fishing lakes and associated hard and soft landscaping
H21-0143-23 OUTLINE Major Sml Dwelling Land off Low Gate Tydd St Mary 13-02-23	Erection of up to 28 dwellings
H09-0501-23 FULL Major Sml Other Land off Holbeach Drove Gate Holbeach Drove 31-05-23	Erection of Agricultural Machinery Assembly Facility, Research and Training Facility, Ground Mounted Solar Array and Associated Infrastructure
H05-0526-23 S73A CONTINUATION Major Sml Dwelling Fleet Road Holbeach 05-06-23	

List of Applications for PS2 Categories (Reference, Type, Category, Location, Date Accepted, Description)
<p>Residential Development - 55 dwellings including demolition of existing house - approved under H05-0770-22. Modification of Condition 4 relating to boundary treatment in north-west corner of the site.</p>
<p>H16-0521-23 OUTLINE Major Lrg Ind Storag Land North of B1173 Barrier Bank and West of A16 Spalding (Lincs Gateway) 05-06-23</p> <p>Erection of buildings to comprise up to 70,000 square metres (Gross Internal Area) of Class B8 (storage or distribution) floorspace to include ancillary Class E(g) (office) floorspace and provision of associated infrastructure including utilising existing vehicular access from B1173. Outline with means of access to be considered.</p>
<p>H14-0062-23 FULL Major Sml Ind Storag Land Off Elsoms Way Pinchbeck 20-03-23</p> <p>Proposed warehouse with associated offices, ancillary accommodation and yard</p>
<p>H14-0259-23 SEC 73 MODIFICATION Major Sml Dwelling Land South of Green Lane/East of Bacons Lane 16-03-23</p> <p>Proposed Development of 63 houses with vehicular access from Surfleet Road - approved under H14-0137-19. Modification of Conditions 3, 4, 6 &amp; 8 relating to phasing scheme, remediation of contaminated land, construction management plan and foul water</p>
<p>H04-0973-22 FULL Major Sml Dwelling 18 High Street Donington 30-05-23</p> <p>Erection of 11 dwellings comprising 7 town houses &amp; 4 detached dwellings and demolition of existing buildings – resubmission of H04-0035-22</p>
<p>H09-1146-22 OUTLINE Major Sml Dwelling Off Paddock Lane Holbeach Bank 25-07-23</p> <p>Outline Permission for the Development of 9 Detached Eco Homes</p>
<p>H18-1034-23 SEC 73 MODIFICATION Major Lrg Other Gunthorpe Road Solar Farm Land south of Gunthorpe Road 23-11-23</p>

### List of Applications for PS2 Categories (Reference, Type, Category, Location, Date Accepted, Description)

Installation of a solar farm and battery storage facility with associated infrastructure - H18-0741-21 - approved on Appeal. Modification of Condition 3 to allow the solar farm and battery storage facility to operate for a further 5 years to 40 years

H09-1044-23 RESERVED MATTERS Major Lrg Dwelling Land off Hallgate & Fen Road Holbeach 28-11-23

Erection of 285 dwellings including parking, public open space, drainage, infrastructure, landscaping, access, appearance, layout and scale (Phase 3) - outline approval H09-0521-14 and re-submission of H09-0845-22 and H09- 1118-22.

H11-1047-23 SEC 73 MODIFICATION Major Sml Dwelling Land Between Seagate Rd & B1359 Wisbech Rd Long Sutton 30-11-23

Erection of 171 dwellings and associated works - approved under H11-1346-21. Modification of Condition 1 to allow amendments to previously approved plans.

H01-1053-23 SEC 73 MODIFICATION Major Sml Office Land at 66 Barrier Bank Cowbit 01-12-23

Proposed replacement offices & storage buildings including demolition of existing buildings - Part retrospective - approved under H01-0640-22. Modification of Condition 2 to allow amendments to previously approved plans

H08-1220-22 FULL Major Sml Office S M CBELCHMIRE LANE 25-01-23

Erection of 3 manufacturing units and part change of use from agricultural land to light industrial (change of use to accommodate Units 2 & 3)

H16-0373-23 FULL Major Sml Other Tulip Academy Spalding - Waterside Campus Neville Avenue 25-04-23

Demolition of school building and erection of two-storey teaching block with associated parking and landscaping and temporary siting of classroom units, construction of temporary access and car parking and temporary hardstanding during construction period.

### List of Applications for PS2 Categories (Reference, Type, Category, Location, Date Accepted, Description)

H11-0383-23 SEC 73 MODIFICATION Major Sml Dwelling Land off Lime Walk Long Sutton 21-04-23

Proposed Residential Development - up to 70 dwellings - approved under H11-1264-18. Modification of Condition 11 to allow for a temporary access road into the site for construction traffic & deliveries rather than only the first 60 mts of estate road to be constructed before any dwelling is commenced.

H14-0078-23 OUTLINE Major Sml Dwelling Keston Nurseries (Former) Mill Green Road 07-02-23

Erection of 13 dwellings and construction of internal roads with associated landscaping and areas of open space

H09-0219-23 S73A CONTINUATION Major Lrg Dwelling Holbeach Meadows Phase 2B Land off Hall Gate 05-04-23 Access, appearance, landscaping, layout and scale for highways infrastructure (new link road, roundabout, junctions and modifications to Hall Gate and Fen Road (Phase 1A)), and two phases of residential development totalling 330 dwellings (Phases 1B & 2). Development Brief and Masterplan for phased development of remainder of site (Outline permission H09-0521-14) - approved under H09-0331-17. Modification of Condition 1 to allow amendments to previously approved plans.

H08-0597-23 SEC 73 MODIFICATION Major Sml Dwelling Land off Spalding Road Gosberton 30-06-23

Residential Development - 28 dwellings - approved under H08-1335-21. Modification of Condition 1 to allow amendments to previously approved plans.

H02-1114-23 SEC 73 Major Lrg Ind Storage DECOY FARM SPALDING ROAD 18-12-23

Proposed King Prawn Hatchery, Grow Out and Processing Facility - approved under H02-0875-22. Modification of Condition 2 to allow amendments to previously approved plans.

**List of Applications for PS2 Categories (Reference, Type, Category, Location, Date Accepted, Description)**

H02-1123-23 S73A CONTINUATION Major Sml Dwelling BRIDGE INN CARAVAN PARKBRIDGE INN 21-12-23

Proposed static and touring caravan park, inc. new toilet block and access road - approved under H02-0359-00. Modification of the wording of Condition 6 to read 'The static caravans shall not be occupied during the month of January and the first two weeks of February each year. Caravans 1, 2, 3, 4 and 14 are excluded from the condition and can be occupied all year.

H06-1137-23 FULL Major Lrg Other Land off Topsgate Gedney 27-12-23

Change of use from agricultural land to dog exercise paddock, altered vehicular access, parking and stationing of a field shelter

H23-0179-23 S73A CONTINUATION Major Sml Dwelling Land Off Cobgate Whaplode 27-02-23

Proposed residential Development of 28 bungalows including estate roads, public open space and landscaping - approved under H23-0714-18 - Modification of Condition 2 to allow amendments to previously approved plans

H13-0190-23 FULL Major Lrg Other Land at Moulton Bulb Co. Ltd Long Lane 07-03-23  
Erection of a ground mounted solar array with associated infrastructure.

H14-0262-23 SEC 73 MODIFICATION Major Sml Other Land off Blue Gowt Lane Pinchbeck 17-03-23

Proposed cemetery, storage building and parking and use of land as an informal Public Recreation Area – approved under H14-0286-22. Modification of Condition 2 to allow amendments to previously approved plans

H02-0241-23 FULL Major Sml Other Off Carrington Drove Crowland 22-03-23

Change of use of land and conversion of existing poultry shed, including two extensions, re-cladding of external elevations, site fencing and associated works to Use Class E

<b>List of Applications for PS2 Categories (Reference, Type, Category, Location, Date Accepted, Description)</b>
<p>H13-1066-23 FULL Major Lrg Other Moulton Park High Road 14-12-23 Change of use from agricultural parkland to parkland for recreational use by the community</p>
<p>H14-1081-23 S73A CONTINUATION Major Sml Dwelling Land north of Wardentree Lane Pinchbeck 01-12-23</p> <p>Erection of 96 dwellings and associated works - approved under H14-0165-21. Modification of Condition 1 to allow amendments to previously approved plans and Condition 7 relating to tree protection/landscaping</p>
<p>H05-1067-23 FULL Major Lrg Other Land adj The Coach House Haycroft Lane 15-12-23 Change of use from agricultural land to paddocks including stables, barn and menage</p>
<p>H11-1084-23 FULL Major Sml Ind Storage Cowpers Gate (South)Station 14-12-23</p> <p>Proposed extensions to existing agricultural buildings</p>
<p>H20-0296-23 S73A CONTINUATION Major Sml Dwelling Land adj. Havencombe Chapelgate 30-03-23</p> <p>Residential development comprising 30 dwellings with associated estate roads, landscaping &amp; open space – approved under H20-0947-21. Modification of Condition 6 to allow for occupation of dwellings on part of site that is not classified as contaminated i.e. Plots 1 to 12 inclusive before verification report is submitted.</p>
<p>H18-0310-23 FULL Major Sml Ind Storage Boud Minerals &amp; Polymers Warehouse, West Bank Road 06-04-23</p> <p>Proposed Open Storage Buildings, Concrete Yard and Access</p>
<p>H12-0687-23 FULL Major Sml Ind Storag Monmouth Lane Luton Gowts 31-07-23</p> <p>Construction of 5,360 sq mt glasshouse together with a fresh water storage lagoon</p>
<p>H16-0767-23 FULL Major Sml Other Former Bull And Monkie Church Gate 05-09-23</p> <p>Demolition of vacant former public house and erection of 88 bed care home including onsite parking amenity space and associated works.</p>

**List of Applications for PS2 Categories (Reference, Type, Category, Location, Date Accepted, Description)**

<p>H11-0784-23 FULL Major Sml Other Chase Farm4 Vicarage Lane 14-11-23</p> <p>Use of land for dog walking including proposed fencing</p>
<p>H13-0860-23 FULL Major Sml Ind Storage PELOTON PRODUCE LTDWEST COB GATE 26-09-23</p> <p>Change of use of agricultural land to commercial including coldstore extension - resubmission of H13-0599-22</p>
<p>H16-0879-23 SEC 73 MODIFICATION Major Sml Retail Springfields Outlet Centre Camel Gate 02-10-23</p> <p>Proposed Extension of Springfields Outlet Shopping &amp; Leisure, to comprise demolition of the existing NFU Mutual offices and provision of comparison retail floorspace (Class A1), flexible retail and/or coffee shops/restaurants floorspace (Class A1/A3), access, revised car parking, landscaping and associated works approved under H16-0104-20. Modification of Conditions 2, 6, 7, 11, 12 &amp; 13 relating to approved plans, archaeological investigation, notification to LCC historic environment, existing &amp; proposed site levels, terrorism prevention measures and contamination including site investigation &amp; remediation strategy.</p>
<p>H15-1095-23 FULL Major Sml Dwelling Land off Main Road Quadring 11-12-23</p> <p>Proposed residential development comprising 14 dwellings</p>
<p>H16-1096-23 FULL Major Lrg Ind Storag Land between A16 and Rangell Gate Spalding 18-12-23</p> <p>Proposed Anaerobic Digester Plant</p>
<p>H17-1097-23 FULL Major Lrg Ind Storage Land East of Surfleet Bank and West of Woad Farm 18-12-23</p> <p>Proposed plant based protein extraction facility and anaerobic digester plant</p>
<p>H23-0534-23 RESERVED MATTERS Major Sml Dwelling Land North of First Bungalow Stockwell Gate 21-06-23</p>



<b>List of Applications for PS2 Categories (Reference, Type, Category, Location, Date Accepted, Description)</b>
Erection of 37 dwellings including road layout, scale, appearance and landscaping - outline approval H23-0827-22
H09-0699-23 FULL Major Lrg Other Caudwell Farm Holbeach St Matthews 04-08-23 Erection of a 49.9MW Ground Mounted Solar Array with Associated Underground Cable Route, Substation with POC Mast, Battery Storage and Ancillary Equipment & Structures
H09-0790-23 FULL Major Lrg Other Land west of Fensever Further Old Gate 05-09-23 Change of use from agricultural to equestrian for personal use
H13-0959-23 FULL Major Sml Ind Storage Moulton Bulb Company Ltd Long Lane 13-11-23 Erection of Onion Drying/Conditioning Store to replace previously approved H13-0092-21

## **Additional Air Quality Works Undertaken by South Holland District Council During 2023**

South Holland District Council has not completed any additional works within the reporting year of 2023.

## **QA/QC of Diffusion Tube Monitoring**

South Holland District Council's diffusion tubes are supplied and analysed by Gradko International Limited, utilising the 20% Triethanolamine (TEA) in acetone preparation method.

Gradko International Ltd is a UKAS accredited laboratory and participates in laboratory performance and proficiency testing schemes. These provide strict performance criteria for participating laboratories to meet, thereby ensuring NO<sub>2</sub> concentrations reported are of a high calibre. The laboratory follows the procedures set out in the Harmonisation Practical Guidance and participates in the AIR proficiency-testing (AIR-PT) scheme. Defra and the

Devolved Administrations advise that diffusion tubes used for LAQM should be obtained from laboratories that have demonstrated satisfactory performance in the AIR-PT scheme. Laboratory performance in the AIR-PT is also assessed by the National Physical Laboratory (NPL), alongside laboratory data from the monthly NPL Field Inter-Comparison Exercise.

The monitoring has been completed in adherence with the 2023 Diffusion Tube Monitoring Calendar.

### Diffusion Tube Annualisation

All diffusion tube monitoring locations within South Holland District Council recorded data capture of 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.

### Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2023 ASR have been corrected for bias using an adjustment factor. Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference chemiluminescence analyser. LAQM.TG22 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO<sub>x</sub>/NO<sub>2</sub> continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

South Holland District Council have applied a local bias adjustment factor of 0.89 to the 2023 monitoring data. A summary of bias adjustment factors used by South Holland District Council over the past five years is presented in Table C..

**Table C.1 – Bias Adjustment Factor**

Monitoring Year	Local or National	Adjustment Factor
2023	Local	0.89
2022	Local	0.94
2021	Local	0.79
2020	Local	0.80

2019	Local	0.83
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**Table C.1 – Local Bias Adjustment Calculation**

	Local Bias Adjustment Input 1
<b>Periods used to calculate bias</b>	12
<b>Bias Factor A</b>	0.89 (0.8 – 1)
<b>Bias Factor B</b>	13% (0% - 26%)
<b>Diffusion Tube Mean (<math>\mu\text{g}/\text{m}^3</math>)</b>	7.6
<b>Mean CV (Precision)</b>	4.3%
<b>Automatic Mean (<math>\mu\text{g}/\text{m}^3</math>)</b>	6.7
<b>Data Capture</b>	99%
<b>Adjusted Tube Mean (<math>\mu\text{g}/\text{m}^3</math>)</b>	7 (6 – 8)

**Notes:**

A single local bias adjustment factor has been used to bias adjust the 2023 diffusion tube results.

**NO<sub>2</sub> Fall-off with Distance from the Road**

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO<sub>2</sub> concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/NO<sub>2</sub> fall-off with distance calculator available on the LAQM Support website.

No diffusion tube NO<sub>2</sub> monitoring locations within South Holland District Council required distance correction during 2023.

**QA/QC of Automatic Monitoring**

South Holland District Council contracts data management for their continuous analysers to Ricardo-AEA. The QA/QC procedures employed by Ricardo-AEA are equivalent to the UK Automatic Urban and Rural Network (AURN) procedures. All data have been ratified and TEOM data have been VCM corrected.

### **PM<sub>10</sub> Monitoring Adjustment**

The PM<sub>10</sub> results have been corrected by Ricardo-AEA who undertake the data management for the two automatic continuous monitoring sites. TEOM data have been Volatile Correction Model (VCM) corrected.

### **Automatic Monitoring Annualisation**

All automatic monitoring locations within South Holland District 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.

### **NO<sub>2</sub> Fall-off with Distance from the Road**

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO<sub>2</sub> concentration at the nearest location relevant for exposure has been estimated using the NO<sub>2</sub> fall-off with distance calculator available on the LAQM Support website.

No automatic NO<sub>2</sub> monitoring locations within South Holland District required distance correction during 2023.

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

Figure D.1 – Map of Non-Automatic Monitoring Site: Spalding

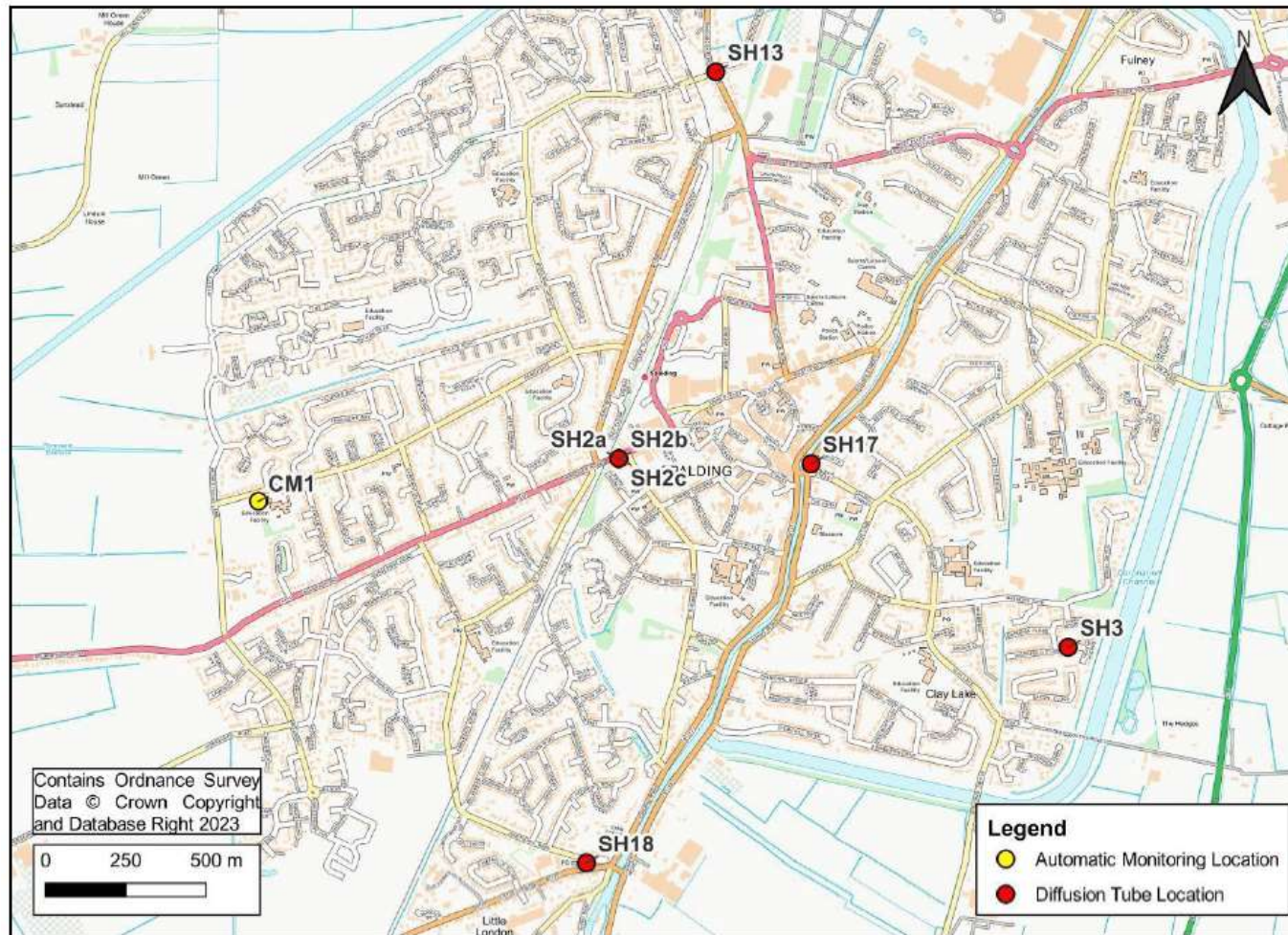




Figure D.2 – Map of Non-Automatic Monitoring Site: Sutton Bridge

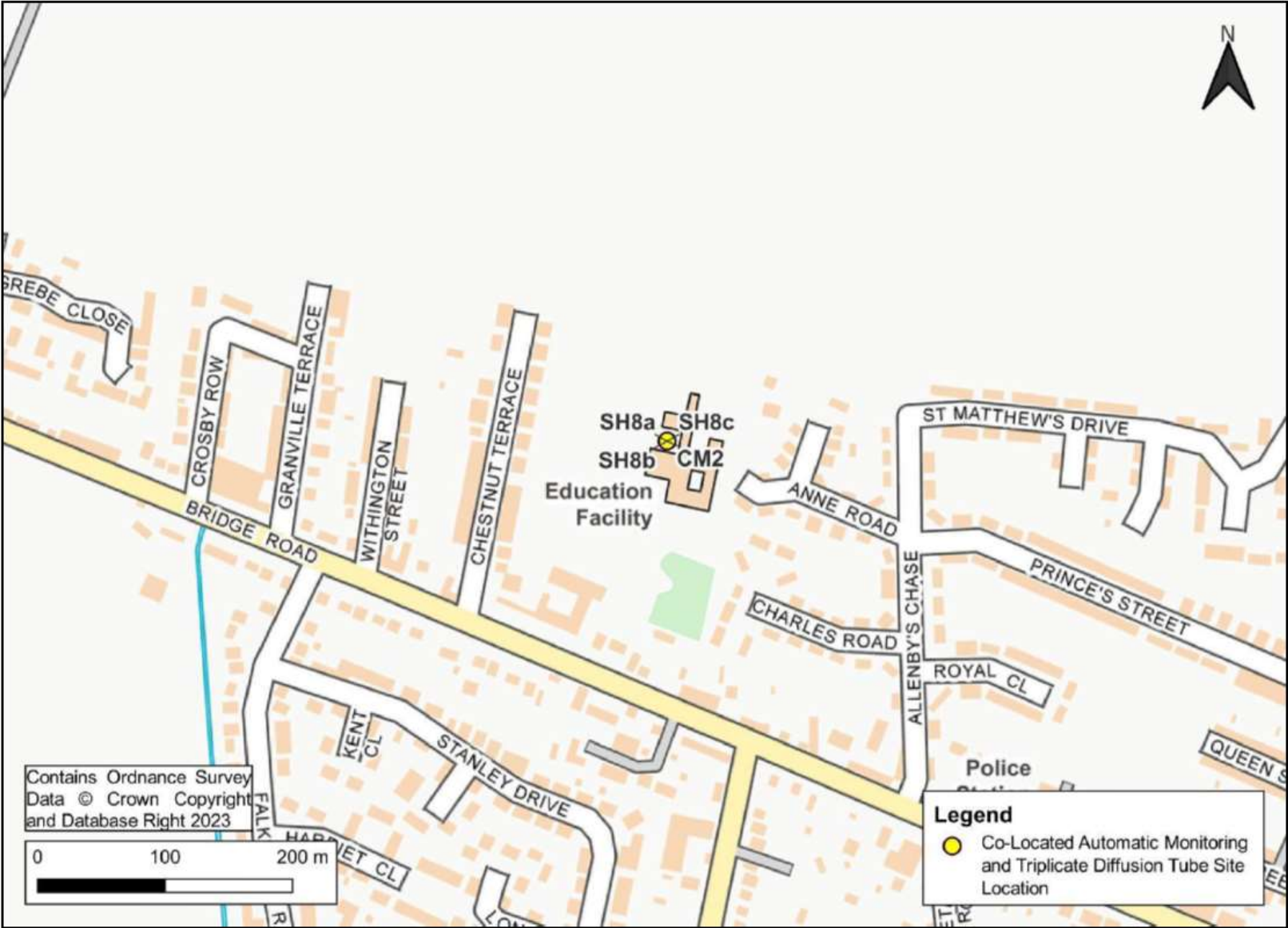


Figure D.3 – Map of Non-Automatic Monitoring Site: Crowland





Figure D.4 – Map of Non-Automatic Monitoring Site: Whaplode





Figure D.5 – Map of Non-Automatic Monitoring Site: Holbeach

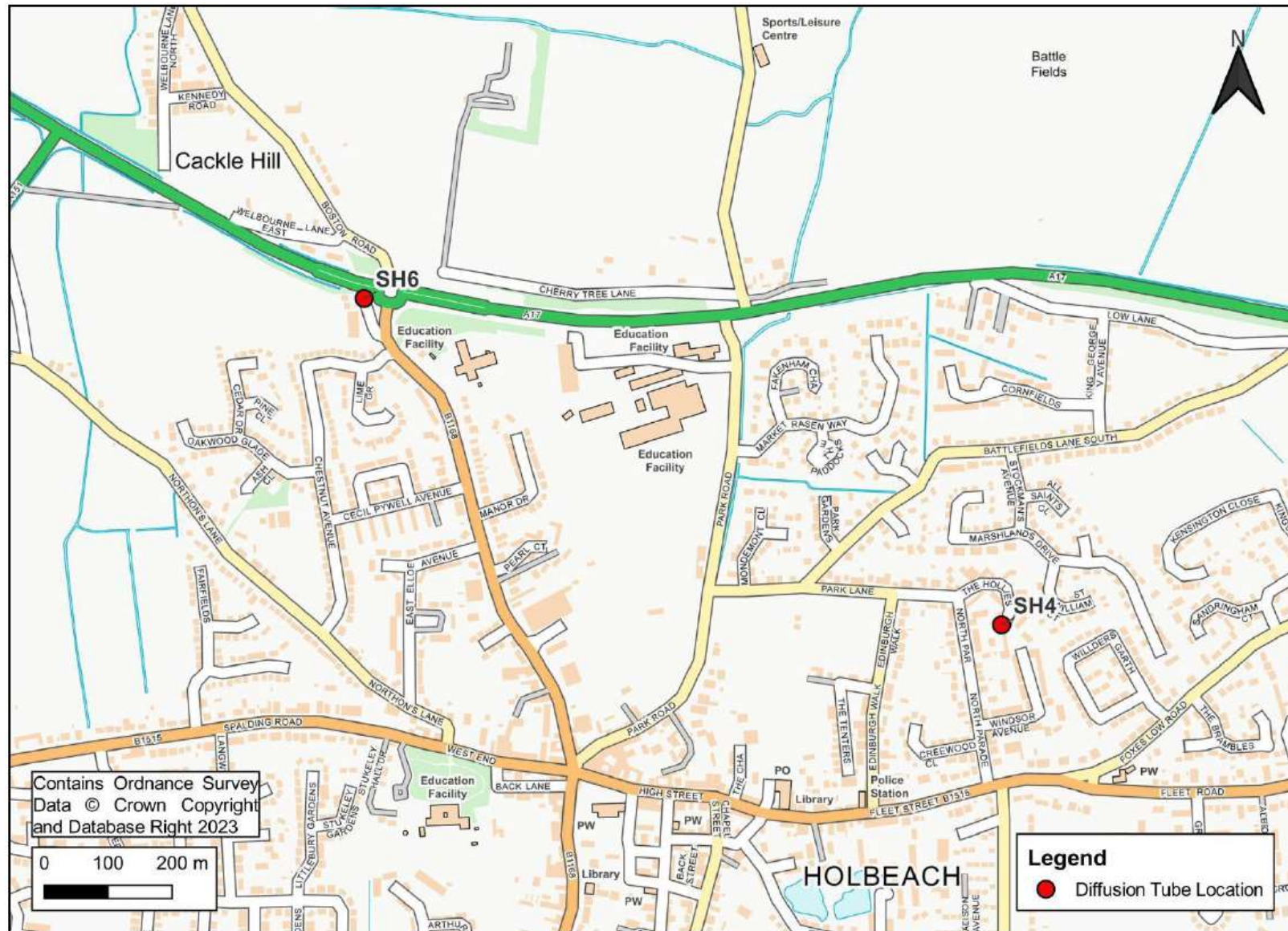


Figure D.6 – Map of Non-Automatic Monitoring Site: Gedney





Figure D.7 – Map of Non-Automatic Monitoring Site: Pinchbeck

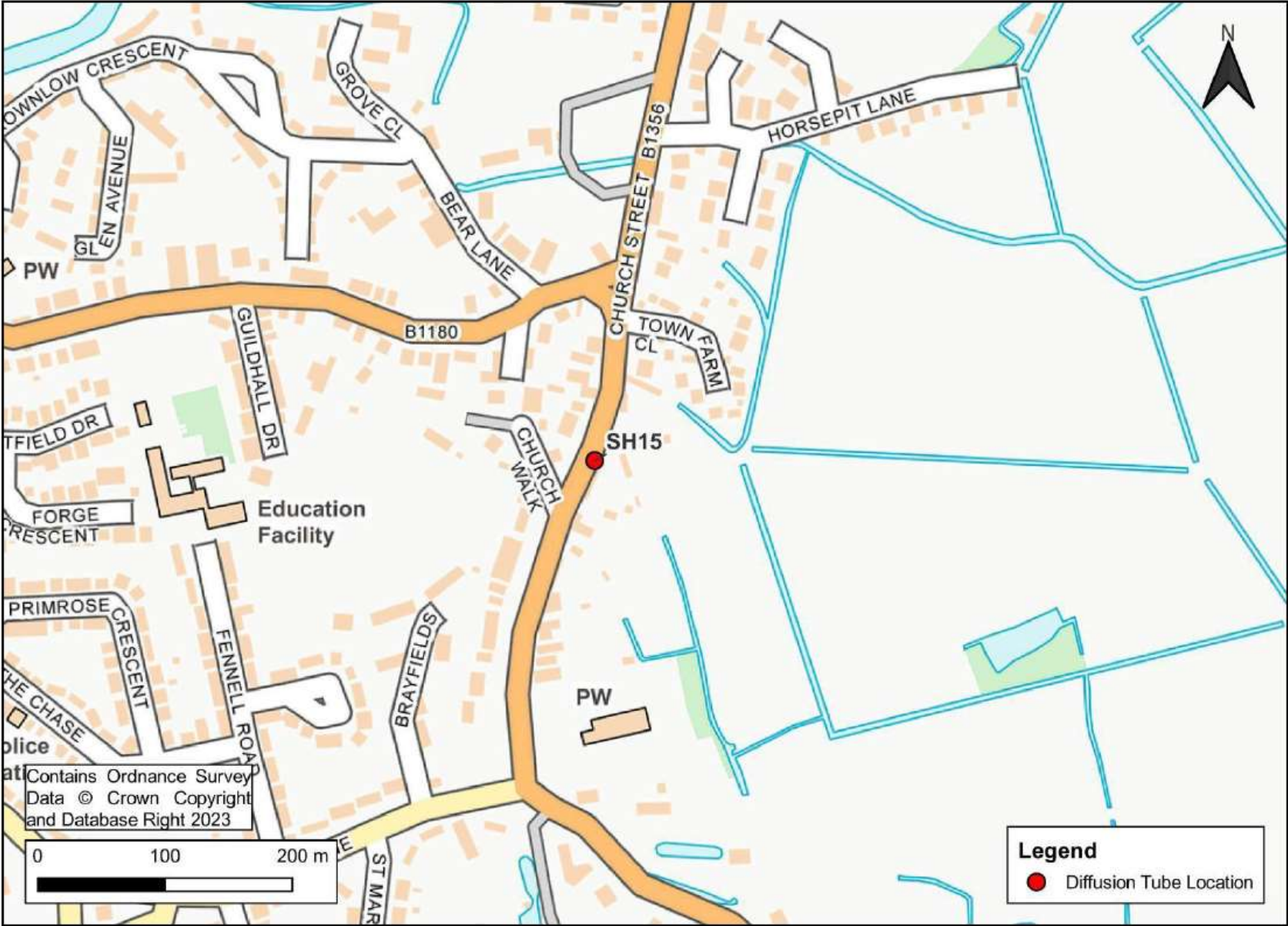






Figure D.9 – Map of Non-Automatic Monitoring Site: Donington

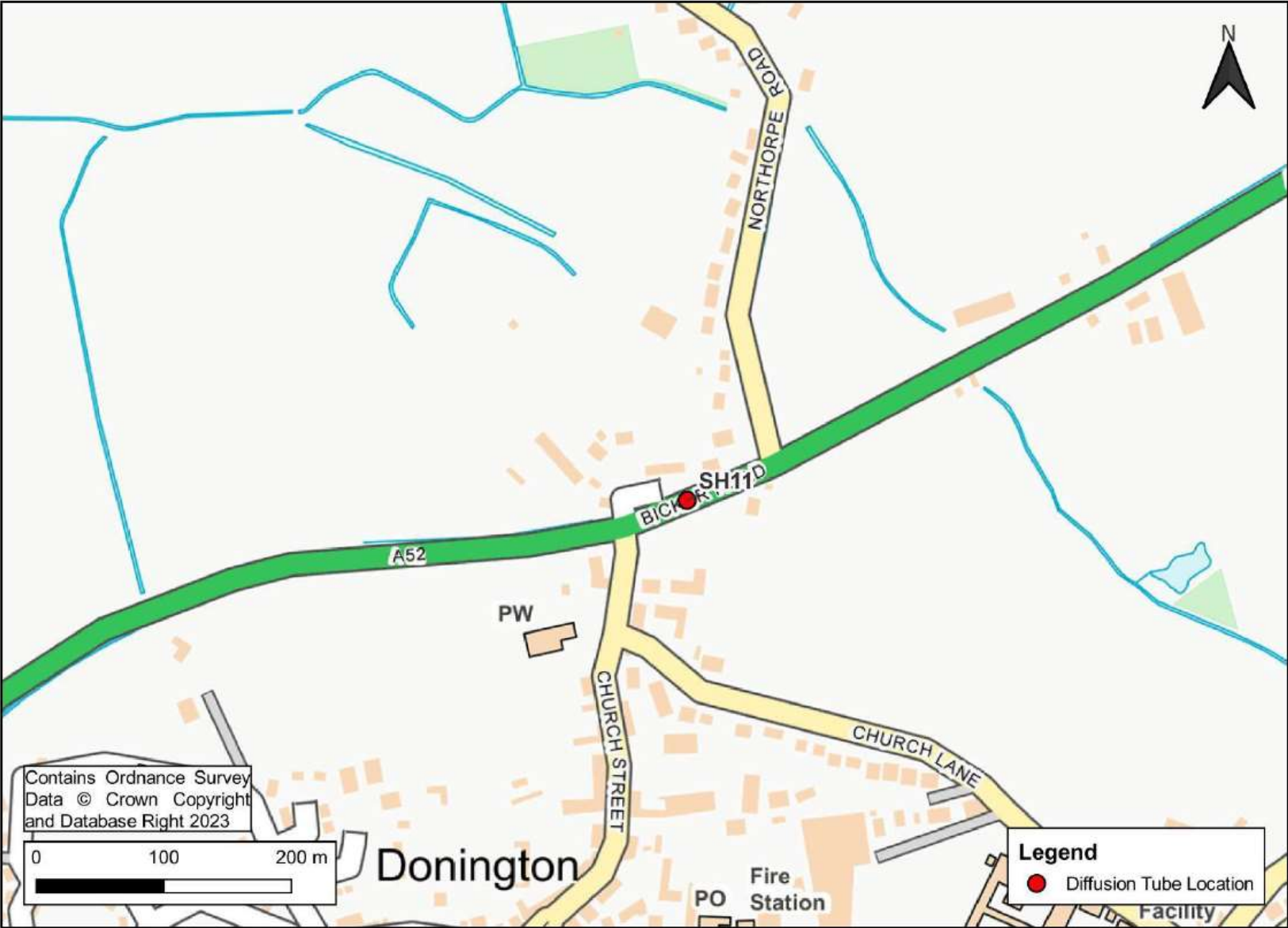


Figure D.10 – Map of Non-Automatic Monitoring Site: Surfleet Seas End



## Appendix E: Summary of Air Quality Objectives in England

**Table E.1 – Air Quality Objectives in England<sup>7</sup>**

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

<sup>7</sup> The units are in microgrammes of pollutant per cubic metre of air (µg/m<sup>3</sup>).

## Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by National Highways
EU	European Union
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO <sub>2</sub>	Nitrogen Dioxide
NO <sub>x</sub>	Nitrogen Oxides
PM <sub>10</sub>	Airborne particulate matter with an aerodynamic diameter of 10µm or less
PM <sub>2.5</sub>	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO <sub>2</sub>	Sulphur Dioxide



## References

- Local Air Quality Management Technical Guidance LAQM.TG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- Local Air Quality Management Policy Guidance LAQM.PG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- Chemical hazards and poisons report: Issue 28. June 2022. Published by UK Health Security Agency
- Air Quality Strategy – Framework for Local Authority Delivery. August 2023. Published by Defra.
- South Holland District Council Annual Status Report 2023
- South Holland District Council Annual Status Report Appraisal Report August 2023
- Ozone (O3) Accredited Official Statistics: Updated 30<sup>th</sup> April 2024. Published by Defra.