



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: June 2024

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Executive Summary: Air Quality in Our Area

This report details the results of air quality monitoring undertaken in 2023 across Mid Sussex District and is prepared in accordance with the guidance issued by the Department for Environment, Food and Rural Affairs (Defra).

Local Authorities across the United Kingdom are required to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives set by the Government are likely to be achieved. Where exceedances are 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.

Mid Sussex District Council (MSDC) declared an AQMA at Stonepound Crossroads in Hassocks in 2012. Since then, pollution levels have declined to the degree where it is now our intention to revoke the AQMA. The Council's AQAP includes measures such as "intelligent" traffic lights to improve traffic flow, "cut engine, cut pollution" signs, travel plans, planning controls and promotion of more sustainable transport.

We hope that by working together with the public and our partners, we can reduce reliance on the car and continue to improve the air that we all breathe.

Air Quality in Mid Sussex

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 year¹.

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 pollution².

¹ UK Health Security Agency. Chemical Hazards and Poisons Report, Issue 28, 2022.

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

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 ₂) | Nitrogen dioxide is a gas which is generally emitted from high-temperature combustion processes such as road transport or energy generation. |
| Sulphur Dioxide (SO ₂) | Sulphur dioxide (SO ₂) is a corrosive gas which is predominantly produced from the combustion of coal or crude oil. |
| Particulate Matter (PM ₁₀ and PM _{2.5}) | <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>PM₁₀ refers to particles under 10 micrometres. Fine particulate matter or PM_{2.5} are particles under 2.5 micrometres.</p> |

The area covered by Mid Sussex District Council is primarily countryside, with three major towns. One area of the district, the Sussex Downs, has been designated as part of the South Downs National Park, with a significant number of villages, hamlets, ancient churches and woodlands and does not incorporate a significant heavy industrial base. The district also contains part of the High Weald Area of Outstanding Natural Beauty (AONB). Locally, the most significant contributions to poor air quality come from road transport, the air pollutant currently of most concern being nitrogen dioxide (NO₂).

Road transport is responsible for approximately 80% of NO₂ concentrations at the roadside, with diesel vehicles of greatest concern at a local level. Expected improvements to the diesel vehicle fleet did not deliver the predicted reductions in emissions and this was demonstrated in real-world emissions testing.

The main source of air pollution in the district is road traffic emissions, mostly from major roads. Exposure to these emissions is highest where buildings are located close to these roads, notably the A273 area north and south of Hassocks. Information on this declared AQMA has been included on the Council's web pages at [Air Quality - Mid Sussex District Council](#).

Previous air quality monitoring and modelling carried out by the Council indicated that

despite good air quality within most of the district, the annual mean air quality objective for nitrogen dioxide (NO₂) was not being met in the Stonepound Crossroads area of Hassocks where the A273 Brighton Road intersects with the B2116 Keymer Road.

Therefore, in March 2012 an Air Quality Management Area (AQMA) was declared at Stonepound Crossroads, Hassocks.

Monitoring results across the district in 2023 are very encouraging overall. There are no exceedances in the district and all results are lower than 2019 pre-lockdown levels. All monitoring sites are reading lower than they were last year, except for one, which is showing a slight increase but low overall levels (MSAQ18, which has increased from 17.4 ug/m³ to 19.0 ug/m³).

It is probable that factors such as new working patterns i.e. more working from home, as well as increasing numbers of electric vehicles and a reduction in older (more polluting) vehicles on the road play a significant role. Some caution should be applied to any long-term conclusions drawn from this year's data in comparison to recent years given that future working trends are not yet clear, but it is evident that the underlying trend downwards continues.

Within the Council's only AQMA at Stonepound Crossroads in Hassocks, the main pollutant (NO₂) is from road traffic emissions. Exceedances are attributed to the topography of the area and the volume of road traffic. Since the AQMA was declared there has been an overall reduction in measured NO₂. For the fifth consecutive year, there are no exceedances within the AQMA. On this basis, revocation of the AQMA is proposed and will be implemented this year, subject to agreement with Defra.

Due to concerns over measured levels of NO₂ in London Road, East Grinstead, we increased our monitoring in this area to get a clearer understanding of local exposure. Additionally, the Council installed a real time monitor close-by in August 2022, which has now captured data for 2023. The situation is complicated by the nearest residential facades being at first floor level, higher than the monitoring site, so we also installed a monitoring tube at first floor level (MSAQ38) to take account of this. Data from both the real time monitor and the diffusion tubes are below the objective levels and are in a downward trend.

The Council have an Air Quality Action Plan (AQAP) for the existing AQMA in Hassocks, which focuses on a range of measures designed to limit the exceedance of the NO₂ air quality objective of 40ug/m³ (annual mean).

These include:

- Ensuring traffic light sequencing is operating at optimum efficiency.
- Signage and advertising to encourage use of the A2300 as an alternative route.
- Widening of the A2300 as part of major development to the North of Burgess Hill.
- “Cut engine, cut pollution” signs erected approaching each arm of the crossroads.
- Travel wise schemes to promote sustainable transport - to include more car share schemes and alternatives to the car. Promotion of school and work travel plans. Development and promotion of cycle routes.
- Education and raising awareness - increasing the availability of air quality information and incentivising people to change their travel behaviour.
- Working with Planners to ensure appropriate mitigation measures are implemented for new developments affecting the AQMA.

The work under Local Air Quality Management (LAQM) is the legal obligation of both district and county councils, as set out in Defra Policy Guidance PG22 paragraph 3.2:

More than 200 local areas are governed by two-tier authorities e.g. a district council and a county council, each of which have powers and functions that are important in tackling air quality. There are obligations on both district and county councils within Part IV of the Environment Act 1995. The Environment Act 2021 ensures that responsibility for solutions to poor air quality is shared across local government....

In practical terms, actions aimed at improving air quality often require the cooperation of various departments and organisations. MSDC Environmental Protection works in conjunction with other stakeholders, such as our Planning department, UK Health Security Agency, West Sussex County Council (WSCC) Highways, neighbouring districts, the Sussex Air Quality Partnership and the West Sussex Public Health. The assessment and implementation of the identified traffic management schemes is done in cooperation with WSCC as they are the authority responsible for roads and transport management. An air quality action plan steering group has been set up, the work of which contributes largely to the development of Action Plans for the AQMA. The Council is consulted by the Environment Agency upon the granting of environmental permits for ‘Part A1’ industrial processes and liaises with the Agency regarding any issues concerning those permits.

Additionally, Mid Sussex District Council are members of the Sussex Air Quality Partnership ([Sussex-air](#)) which benefits from the co-ordinated monitoring of air pollutants across the region, and provides airAlert* services.

***airAlert is a free service for the residents of Sussex which provides an early warning of poor air quality by text/SMS, voice-mail or email for individuals with asthma or poor respiratory health. This service is also available as a smart-phone app.**

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 Plan³ 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_{2.5}), the pollutant most harmful to human health. The Air Quality Strategy⁴ provides more information on local authorities' responsibilities to work towards these new targets and reduce fine particulate matter in their areas.

The Road to Zero⁵ 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. MSDC has continued a number of measures during the current reporting year of 2023 in pursuit of improving local air quality. The key actions in 2023 focused on a range of measures designed to limit the exceedance of the NO₂ air quality objective in the AQMA. These include:

- Ensuring traffic light sequencing continues to operate at optimum efficiency – WSCC are trialling a new system of pollutant sensor responsive controls to allow

³ Defra. Environmental Improvement Plan 2023, January 2023

⁴ Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

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

the traffic light timings to adjust to measured pollution levels and we have worked together to establish trigger parameters for this trial.

- Signage and advertising to encourage use of the A2300 as an alternative route.
- Completion and opening of the widened A2300 as part of a forthcoming development. The main carriageway is open, and additional infrastructure has been completed.
- Using the planning system to ensure suitable mitigation measures are implemented for any new development affecting the AQMA, including using the latest Sussex wide planning guidance for developers with regard to air quality. This guidance has been adopted as informal planning guidance.
- District Plan includes policies DP21 Transport and DP29 Noise, Air and Light requiring transport mitigation and due consideration to be given to Air Quality issues.
- The Council website's sustainability page provides a link to a map of EV charging points within the district.

To register see [Electric Charging Points - Mid Sussex District Council](#)

Conclusions and Priorities

No exceedances for NO₂ were identified during this reporting year and the underlying trend in the district remains downward. As there have been no exceedances within the AQMA for 5 consecutive years the revocation process can be undertaken.

The large Brookleigh development in Burgess Hill (formally known as Northern Arc) has been assessed through the planning process and is not expected to have a significant impact upon air quality in the district. The locations of monitoring points will continue to be reviewed on an annual basis.

The Council's priorities for the coming year are:

- To revoke the existing AQMA and begin work on the Council's Air Quality Strategy
- Continue to work in partnership with West Sussex Public Health and West Sussex County Council to raise awareness of the facts relating to poor air quality, how to reduce sources of air pollution, focusing on the co-benefits of active travel to health and wellbeing; and how to reduce exposure to air pollution during episodes of poor air quality (airAlert).

- The promotion of “green” travel at the Council with incentives for staff to take sustainable methods of travel into work to promote the cycle-to-work scheme. Council staff also have access to electric bikes.
- The Sayers Common to Hassocks Cycle Route has been approved by WSCC and several sections have been completed. The Millenium Gardens section should be completed before the end of 2024.
- MSDC are part of West Sussex County Council’s *Breathing Better: a partnership approach to improving air quality in West Sussex* and we have previously attended the Inter Authority Air Quality Group made up of the county, districts and boroughs. The group have produced a county wide plan [Air quality - West Sussex County Council](#) and released educational messages in their West Sussex Newsletter.
- WSCC has adopted the West Sussex Electric Vehicle Strategy 2019-2030. Connected Kerb is fully funding EV charge point deployment working with WSCC, Adur and Worthing, Arun, Crawley, Horsham and Mid Sussex district and borough councils.
- Car sharing continues to be promoted through the Sustainability pages on the MSDC intranet.
- Continuing to educate & encourage members of the public to reduce reliance on car use.
- Continued effective communication of the issues to the public, professional partners and colleagues.
- SAQP has extended the current Sustrans schools project for another year.
- Sustrans have been asked to develop educational content for the SAQP website.
- A Defra AQ grant of £150,000 was awarded to Brighton & Hove City Council to retrofit at least 17 double decker buses that will be in operation for the next 3 or 4 years. The affected routes have yet to be confirmed but are likely to include routes through the MSDC area and possibly through the AQMA.

Local Engagement and How to get Involved

MSDC continue to be members of the Sussex Air Quality Partnership (Sussex Air) which responds to Defra consultations and benefits from the co-ordinated monitoring of air pollutants across the region, including the airAlert service:

airAlert

Sussex Air offers to residents of Sussex a free service which provides an early warning of poor air quality by text/SMS, voice-mail or email for individuals with asthma or poor respiratory health.

This service is also available as a smart-phone app.

To receive local air pollution alerts you register at

- airAlert online at www.airalert.info/
- by telephone on 01273 484337
- alternatively download the airAlert app for Apple or Android phones

Additionally, members of the public are able to:

- Find out about bus and coach travel, community transport, and sustainable travel on the WSCC website.
- Find out from their child's school about available travel options for getting to school.
- See the Air Quality section of the council's website for information on Bonfires & Smoke, current & previous air quality reports, Stonepound Crossroads AQMA and AQAP [Environment - Mid Sussex District Council](#)
- Advice and information are available to residents by contacting the Council's Air Quality Officer via our website or through the Sussex Air Partnership.

Local Responsibilities and Commitment

This ASR was prepared by the Environmental Health Department of Mid Sussex Council with the support and agreement of the following officers and departments:

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This ASR has been approved by:

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If you have any comments on this ASR please send them to Nick Bennett at:

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1 Local Air Quality Management

This report provides an overview of air quality in Mid Sussex 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 Mid Sussex 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.

A summary of AQMAs declared by Mid Sussex can be found in Table 2.1. The table presents a description of the only AQMA that is currently designated within Mid Sussex. Appendix D provides maps of AQMAs and also the air quality monitoring locations in relation to the AQMAs. The air quality objectives pertinent to the current AQMA designation is as follows:

- NO₂ annual mean

We propose to revoke our only AQMA, at Stonepound Crossroads (Mid Sussex District Council AQMA (No.1) 2012) as it has met the air quality objectives for five consecutive years.

Table 2.1 – Declared Air Quality Management Areas

| AQMA Name | Date of Declaration | Pollutants and Air Quality Objectives | One Line Description | Is air quality in the AQMA influenced by roads controlled by Highways England? | Level of Exceedance: Declaration | Level of Exceedance: Current Year | Number of Years Compliant with Air Quality Objective | Name and Date of AQAP Publication | Web Link to AQAP |
|--|---------------------|---------------------------------------|--|--|----------------------------------|---|--|--|---|
| Mid Sussex District Council AQMA (No.1) 2012 | 13/03/2012 | NO ₂ Annual Mean | An area encompassing 3 residential properties at the junction of Stonepound Crossroads | YES | 47 | None (Maximum concentration recorded in AQMA = 28.0 ug/m ³) | 5 | Mid Sussex District Council Air Quality Action Plan 2022 | https://www.mid-sussex.gov.uk/environment-net-zero/air-quality/ |

- Mid Sussex confirm the information on UK-Air regarding their AQMA(s) is up to date.
- Mid Sussex confirm that all current AQAPs have been submitted to Defra.

2.2 Progress and Impact of Measures to address Air Quality in Mid Sussex

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

"The report is well structured, detailed, and provides the information specified in the Guidance. The following comments are designed to help inform future reports.

1. Discussion surrounding the commentary provided in the appraisal report of the 2023 ASR is provided. It is good to see that the Council is reflecting on and addressing these comments. This is encouraged to continue in future reporting years.
2. The report includes detailed discussion of PM_{2.5} and draws links to the Public Health Outcomes Framework and fraction of mortality attributable to PM_{2.5} emissions. Comparisons to neighbouring authorities and the national average are provided. It is also highlighted that a new method of calculating is being used within the Framework. This is indicative of good practice and is encouraged to be included in all future reports.
3. The installation of the new automatic monitor in East Grinstead was completed in August 2022. This is welcomed and any updates on future PM_{2.5} monitoring should be provided in future ASRs.
4. It is encouraged that PM_{2.5} concentrations are estimated based off of monitored PM₁₀ concentrations following the methodology detailed in LAQM.TG(22) until a PM_{2.5} monitor is installed.
5. It is encouraged that the monitoring network continues to be reviewed, with additional monitoring deployed within the AQMA at or near to relevant exposure to confirm annual concentrations. It is welcomed that triplicate diffusion tubes were deployed at the new automatic monitoring site.
6. The measures for reducing NO₂ contained within the council's AQAP will contribute to tackling PM_{2.5} emissions as these emissions share similar sources. The council states that separate measures focused on reducing PM_{2.5} within the AQMA are not currently considered to be feasible or cost effective. This was stated in the previous years' ASR. This should continue to be reviewed, and

measures focusing on PM_{2.5} may be considered as part of a district air quality strategy.

7. All diffusion tube monitoring locations were presented within the trend graphs. This update is a welcome addition following the comments within the 2021 ASR appraisal letter.
8. Within Table A.4, the valid data capture for the monitoring period was not calculated correctly for some sites. The 'Valid Data Capture for Monitoring Period' is in cases where monitoring was only carried out for part of the year. If monitoring was intended to be carried out for the full calendar year, then the entries in this column will be the same as the 'Valid Data Capture 2022'. The 'Valid Data Capture 2022' is the 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%). Please contact the LAQM Helpdesk if further clarification is required. (NOTED)
9. Defra recommends that Directors of Public Health approve draft ASRs. Sign off is not a requirement, however collaboration and consultation with those who have responsibility for Public Health is expected to increase support for measures to improve air quality, with co-benefits for all. Please bear this in mind for the next annual reporting process. (NOTED)
10. Diffusion tube mapping is robust and clearly demonstrates the extent of the Council's monitoring network. The Council are encouraged to continue this level of mapping in future reports."

Mid Sussex 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 2.2. Four measures are included within Table 2.2, with the type of measure and the progress Mid Sussex 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 2.2.

More detail on these measures can be found in their respective Action Plans. Key completed measures are:

- Review of MOVA traffic light sequencing in AQMA
- Cut engine, cut pollution signage on each arm of crossroads in AQMA

- MSDC Travel Plan and Green Travel Scheme review
- Local schools travel plans
- Car share and sustainable travel promotion
- Link to Air Alert service on council website
- Promotion of energy efficiency schemes
- *Air quality and emissions mitigation guidance for Sussex* incorporated into Council planning policy
- Improved access into Burgess Hill via A2300 which should encourage HGV traffic in particular to avoid the AQMA
- Additional electric vehicle charging infrastructure being installed as part of Connected Kerb
- Further sections of Sayers Common to Hassocks cycle route being completed
- “Cut engine – cut pollution” signs on each arm of AQMA crossroads

Mid Sussex worked to implement these measures in partnership with the following stakeholders during 2023:

- West Sussex County Council
- Crawley Borough Council
- Horsham District Council

Mid Sussex’s priorities for the coming year are to revoke the existing AQMA and to begin work upon a new Air Quality Strategy.

The principal challenges and barriers to implementation that Mid Sussex anticipates facing are

- Change in priorities for MSDC and partners due to increased energy costs and the cost of living crisis.
- Funding and resources likely to continue to be significantly reduced as a result of the above.

Mid Sussex concludes that the air quality measures stated above and in Table 2.2 have achieved the air quality objectives in the Stonepound Crossroads AQMA and it is appropriate therefore to revoke the AQMA.

Table 2.2 – 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 | Improved Cycle Routes | Transport Planning and Infrastructure | Cycle network | 2014 | 2024 | WSCC and S106 | WSCC and MSDC | NO | Partially Funded | £1 million - £10 million | Implementation | Reduced traffic through AQMA | Measured concentration in AQMA | WSCC previously identified cycle route improvements between Sayers Common and Hassocks through the West Sussex Cycling and Walking Strategy 2016-2026. Hurstpierpoint and Hassocks sections of the scheme have been prioritised for delivery. The shared path section along Dale Avenue and on-road sections on Keymer Road have now been delivered. Plans to upgrade the pedestrian signal crossing to a toucan crossing for cycle use adjacent to Dale Avenue junction are still being investigated. Some landownership issues have delayed delivery of the Millenium Gardens section of the route, but these are now largely resolved and this section is expected to be delivered in early 2024 | Land ownership issues |
| 2 | Encourage the use of electric vehicles by providing public charging points | Promoting Low Emission Transport | Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging | 2015 | 2024 | MSDC and Neighbouring LA's | MSDC | NO | Partially Funded | £50k - £100k | Implementation | Reduced traffic emissions | Measure usage of local authority controlled electric points | Mid Sussex District Council is a founding partner of the West Sussex Chargepoint Network. Connected Kerb is the service provider. First phase of Connected Kerb rollout complete – 11 car parks connected, further sites possible. Second phase – on street charging – currently out for public consultation. Rollout likely to commence in Feb 2024. | Implementation phase |
| 3 | Improved Bus Provision | Transport Planning and Infrastructure | Bus route improvements | 2023 | 2024 | WSCC and S106 | WSCC | NO | Funded | £10k - 50k | Completed | Reduced traffic through AQMA | Passenger numbers | Increased frequency of bus route 273 (up to 10 trips per day) and renewed contract for route 33 including future upgrade of fleet | Upgraded vehicles will be phased in in due course |
| 4 | Optimized traffic lights to real time pollution data | Traffic Management | UTC, Congestion management, traffic reduction | 2021 | 2024 | WSCC and MSDC | WSCC | NO | Funded | < £10k | Implementation | Reduced vehicle emissions | Measured concentration in AQMA | Initial monitoring data available to enable traffic light sequencing trial to commence in 2024 | None |

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

As detailed in Policy Guidance LAQM.PG22 (Chapter 8) and the Air Quality Strategy⁶, local authorities are expected to work towards reducing emissions and/or concentrations of fine particulate matter (PM_{2.5}). There is clear evidence that PM_{2.5} (particulate matter smaller 2.5 micrometres) has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

The most recent data from Public Health Outcomes Framework (PHOF) indicator *Fraction of mortality attributable to particulate air pollution* (indicator D01) shows that the percentage in Mid Sussex was 4.5%. This compares to a national average of 5.8% and an average of 5.7% in the South East region. This data is for 2022 as more recent data is not yet available.

By way of more local comparison, levels in neighbouring authorities are 4.6% in Horsham District, 5.2% in Crawley, 3.7% in Lewes District and 3.8% in Wealden District.

Mid Sussex is taking the following measures to address PM_{2.5}:

MSDC undertakes air quality emissions reduction measures (set out in Table 2.2) which are aimed at reducing NO₂ but will also contribute to reducing PM_{2.5} emissions as these air pollutants share some similar sources, e.g. road traffic emissions and combustion sources. At present Mid Sussex does not undertake any separate reduction measures aimed specifically at tackling PM_{2.5} emissions as it is considered that it is more cost effective to continue with the specified measures that will help to reduce both NO₂ and PM_{2.5}. However, this approach is regularly reviewed and will be assessed again in 2024 in conjunction with Sussex Air and the forthcoming Air Quality Strategy. The approach will be informed by the latest PM_{2.5} target values in accordance with the *Environment Act 2021*. Mid Sussex works in partnership with West Sussex Public Health to communicate the impacts of air pollution including PM_{2.5}. Additionally, Mid Sussex utilises the “*Air quality and emissions mitigation guidance for Sussex*” to encourage lower emission

⁶ Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

developments with planning and transport authorities to assist in reducing PM_{2.5} emissions.

The Council is part of Sussex Air, which previously received Defra funding for the *Clean Burn Sussex* project aimed at encouraging cleaner domestic burning. This project incorporated publicising the message that domestic burning should be reduced where possible and that only clean fuels should be burned in domestic stoves and fireplaces as well as data collection and analysis – over 1700 responses were captured to an online survey of burning habits. This data has been analysed and will help to inform further initiatives and policy with regard to domestic burning.

Finally, a real-time air quality monitoring station has been installed in the district (London Road, East Grinstead). It is currently monitoring NO₂, and PM₁₀. Once we have sufficient PM₁₀ data we intend to replace the PM head and start monitoring PM_{2.5}. This will be undertaken around January 2025. Background levels from national mapping indicated PM_{2.5} in Mid Sussex at 8.7µg/m³ as an annual mean in 2022. The underlying trend is gradually downwards (from 12.08µg/m³ in 2011). This trend is encouraging and the background level does not exceed national target values.

We have also estimated local levels of PM_{2.5} using the nationally derived correction factor. The 2023 National Factor for Roadside sites has been used. The recorded annual PM₁₀ mean concentration at our roadside site in 2023 was 17.0µg/m³. The PM_{2.5} concentration at this site can be estimated as follows:

Step 1: Subtract the annual mean PM₁₀ concentration by the nationally derived correction factor:

$$17.0 - 5.9 = 11.1$$

Step 2: Estimated annual mean PM_{2.5} = 11.1µg/m³

Levels are broadly similar using both methods (8.7 and 11.1 µg/m³) and more importantly, do not exceed target values.

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

This section sets out the monitoring undertaken within 2023 by Mid Sussex 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

Mid Sussex undertook automatic (continuous) monitoring at 1 site during 2023. Table A.1 in Appendix A shows the details of the automatic monitoring sites. The [Sussex-air :: Promoting better Air Quality in Sussex :: sussex-air.net :: Air Quality Near Me](#) page presents automatic monitoring results for Mid Sussex, 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

Mid Sussex undertook non-automatic (i.e. passive) monitoring of NO₂ at 36 sites during 2023. 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 (NO₂)

Table A.3 and Table A.4 in Appendix A compare the ratified and adjusted monitored NO₂ annual mean concentrations for the past five years with the air quality objective of 40µg/m³. Note that the concentration data presented represents the concentration at the location of the monitoring site, following the application of bias adjustment and annualisation, as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

For diffusion tubes, the full 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.

Site locations are reviewed regularly to allow site rotation to ensure that new locations can be added as appropriate. This allows for new development, new roads and local knowledge to be accounted for so that monitoring can be flexible and adapt to local circumstances.

Following a review of monitoring sites in November 2022, three sites which were no longer needed were retired (two from Erica Way, Copthorne, and one from Imberhorne Lane, East Grinstead) and two new sites chosen (High Street, Handcross and Cuckfield Road, Ansty). Table A.5 in Appendix A compares the ratified continuous monitored NO₂ hourly mean concentrations for the past five years with the air quality objective of 200µg/m³, not to be exceeded more than 18 times per year.

The 2023 data showed no exceedances of the air quality objectives and measured levels showed a continuation of the previous long-term downward trend. The maximum annual mean concentration for NO₂ within the AQMA was 28.0 µg/m³ compared to a maximum of 30.7 µg/m³ in 2022. It should be noted that all tubes except one (MSAQ18) showed a decrease compared to last year's data. This appears to confirm that the long-term trend remains the underlying one.

As all the monitoring sites in and around the AQMA at Stonepound Crossroads, Hassocks, have shown compliance for 5 consecutive years, revocation of the AQMA is proposed.

In considering this, reference has been made to Defra's TG22 Technical Guidance document. Section 3.53 advises that *in most cases the decision to amend or revoke an AQMA should only be taken following a detailed study*. It goes on to say though, in section 3.55, that *in some instances if compelling evidence exists, detailed modelling to support the decision to amend/revoke an AQMA may not be necessary and an AQMA may be*

amended or revoked following a screening assessment or on the basis of robust monitoring evidence.

We have discussed this with the LAQM Support Helpdesk and we consider that our monitoring evidence is robust. The reasons for this are as follows:

Absolute levels - In 2019, the highest reading was 36.3 ug/m³, but since then the measured levels of NO₂ during the last four years have all been below 32 ug/m³

Long-term trend – the measured levels within the AQMA have trended consistently downwards over the last five years, notwithstanding the effects of the Covid lockdowns.

The local area – the AQMA is very small, encompassing a crossroad at the edge of a large village. Due to the local topography and the traffic queuing at the four-way traffic lights, the area of exceedance is confined to just one building. Monitoring has consistently shown that no other facades or nearby sites are problematic.

Extensive monitoring – There are eleven diffusion tubes in the immediate area, six of which are within the AQMA, including a triplicate site. We are confident that the monitoring results are both robust and consistent.

Use of “worst case” bias correction – In order to ensure a cautious approach, the national bias correction factor was applied to the diffusion tube data, rather than the more favourable (ie lower) local factor based on our real-time monitor (for full details, see *Diffusion Tube Bias Adjustment Factors* in Appendix C)

Therefore, in accordance with the guidance in TG22 Section 3.57, *The revocation of an AQMA should be considered following three consecutive years of compliance with the relevant objective as evidenced through monitoring. Where NO₂ monitoring is completed using diffusion tubes, to account for the inherent uncertainty associated with the monitoring method, it is recommended that revocation of an AQMA should be considered following three consecutive years of annual mean NO₂ concentrations being lower than 36µg/m³ (i.e. within 10% of the annual mean NO₂ objective). There should not be any declared AQMAs for which compliance with the relevant objective has been achieved for a consecutive five-year period*, we are satisfied that the criteria have been met and the revocation process will begin upon receipt of Defra approval and acceptance of this report.

3.2.2 Particulate Matter (PM₁₀)

Table A.6 in Appendix A: Annual Mean PM₁₀ Monitoring Results (µg/m³) compares the ratified and adjusted monitored PM₁₀ annual mean concentrations for the past five years

with the air quality objective of $40\mu\text{g}/\text{m}^3$ (note – we only have data from when our new real time air quality monitor was installed in 2022, not for previous years).

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

3.2.3 Particulate Matter ($\text{PM}_{2.5}$)

Mid Sussex do not monitor for $\text{PM}_{2.5}$

3.2.4 Sulphur Dioxide (SO_2)

Mid Sussex do not monitor for SO_2

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

| Site ID | Site Name | Site Type | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Pollutants Monitored | In AQMA? Which AQMA? | Monitoring Technique | Distance to Relevant Exposure (m) ⁽¹⁾ | Distance to kerb of nearest road (m) ⁽²⁾ | Inlet Height (m) |
|---------|----------------------------|-----------|-------------------------|--------------------------|------------------------------------|----------------------|------------------------|--|---|------------------|
| MSAQ43 | London Road East Grinstead | Kerbside | 539100 | 138407 | NO ₂ , PM ₁₀ | NO | Chemiluminescent; TEOM | 10 | 1 | 1.7 |

Notes:

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

(2) N/A if not applicable

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

| Diffusion Tube ID | Site Name | Site Type | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Pollutants Monitored | In AQMA? Which AQMA? | Distance to Relevant Exposure (m) ⁽¹⁾ | Distance to kerb of nearest road (m) ⁽²⁾ | Tube Co-located with a Continuous Analyser? | Tube Height (m) |
|-------------------------------|--|-----------|-------------------------|--------------------------|----------------------|----------------------|--|---|---|-----------------|
| MSAQ1 | South Road Haywards Heath | Roadside | 533342 | 123587 | NO ₂ | NO | 0.0 | 2.5 | No | 1.6 |
| MSAQ3 | Southwick House London Road East Grinstead | Kerbside | 538690 | 138759 | NO ₂ | NO | 18.0 | 0.5 | No | 2.2 |
| MSAQ5 | Bus Stop Lewes Road East Grinstead | Suburban | 541245 | 136996 | NO ₂ | NO | 16.0 | 1.5 | No | 2.3 |
| MSAQ9 | Water Tower Colwood Lane Warninglid | Rural | 525664 | 125035 | NO ₂ | NO | 40.0 | 35.0 | No | 2.1 |
| MSAQ10 | Traffic Light Keymer Road Hassocks | Roadside | 529911 | 115489 | NO ₂ | YES | 6.7 | 1.5 | No | 1.7 |
| MSAQ11a MSAQ11b MSAQ11c | Over Court Keymer Road Hassocks | Roadside | 529930 | 115481 | NO ₂ | YES | 0.0 | 5.5 | No | 2.5 |
| MSAQ12 | Telegraph Pole Keymer Road Hassocks | Kerbside | 529999 | 115488 | NO ₂ | NO | 26.0 | 1.1 | No | 2.4 |
| MSAQ13 | Lamp Post Keymer Road Hassocks | Kerbside | 529995 | 115476 | NO ₂ | NO | 19.0 | 0.9 | No | 2.3 |
| MSAQ14 | Bus Stop London Road Hassocks | Kerbside | 529911 | 115598 | NO ₂ | NO | 23.0 | 1.6 | No | 2.6 |
| MSAQ15 | Traffic Lights sign London Road Hassocks | Kerbside | 529930 | 115600 | NO ₂ | NO | 6.5 | 1.6 | No | 2.4 |

| Diffusion Tube ID | Site Name | Site Type | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Pollutants Monitored | In AQMA? Which AQMA? | Distance to Relevant Exposure (m) ⁽¹⁾ | Distance to kerb of nearest road (m) ⁽²⁾ | Tube Co-located with a Continuous Analyser? | Tube Height (m) |
|-------------------|--|-----------|-------------------------|--------------------------|----------------------|----------------------|--|---|---|-----------------|
| MSAQ17 | Lamp Post Brighton Road Hassocks | Kerbside | 529894 | 115340 | NO ₂ | NO | 10.0 | 1.3 | No | 2.2 |
| MSAQ18 | Bus Stop Brighton Road Hassocks | Kerbside | 529907 | 115428 | NO ₂ | NO | 9.0 | 2.0 | No | 2.6 |
| MSAQ19 | Lamp Post Hurst Road Hassocks | Roadside | 529779 | 115557 | NO ₂ | NO | 13.2 | 1.3 | No | 2.5 |
| MSAQ21 | London Road Burgess Hill | Roadside | 530792 | 119821 | NO ₂ | NO | 2.5 | 1.9 | No | 2.0 |
| MSAQ22 | Leylands Road Burgess Hill | Roadside | 532160 | 120069 | NO ₂ | NO | 3.0 | 1.5 | No | 2.0 |
| MSAQ23 | Over Court Eastern Façade Keymer Road Hassocks | Roadside | 529935 | 115478 | NO ₂ | YES | 0.0 | 5.8 | No | 2.0 |
| MSAQ24 | Over Court Western Façade Keymer Road Hassocks | Roadside | 529918 | 115476 | NO ₂ | YES | 0.0 | 7.5 | No | 1.8 |
| MSAQ25 | Erica Way Copthorne | Kerbside | 531176 | 138829 | NO ₂ | NO | 0.0 | 4.0 | No | 2.0 |
| MSAQ26 | High Street Hurstpierpoint | Suburban | 528289 | 116395 | NO ₂ | NO | 0.8 | 2.1 | No | 2.5 |
| MSAQ27 | Telegraph Pole London Road Hickstead | Suburban | 526870 | 120238 | NO ₂ | NO | 10.0 | 3.8 | No | 2.2 |
| MSAQ28 | Lamp Post Rocky Lane Haywards Heath | Suburban | 533342 | 122625 | NO ₂ | NO | 11.0 | 1.3 | No | 2.3 |

| Diffusion Tube ID | Site Name | Site Type | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Pollutants Monitored | In AQMA? Which AQMA? | Distance to Relevant Exposure (m) ⁽¹⁾ | Distance to kerb of nearest road (m) ⁽²⁾ | Tube Co-located with a Continuous Analyser? | Tube Height (m) |
|-------------------|--|-----------|-------------------------|--------------------------|----------------------|----------------------|--|---|---|-----------------|
| MSAQ29 | 184 London Road East Grinstead | Roadside | 539040 | 138452 | NO ₂ | NO | 0.7 | 2.7 | No | 2.4 |
| MSAQ32 | Lamp Post Woodcroft Burgess Hill | Roadside | 530791 | 120295 | NO ₂ | NO | 5.5 | 1.5 | No | 2.2 |
| MSAQ34 | Lamp Post No 12 Queen Elizabeth Avenue Burgess Hill | Roadside | 531144 | 118862 | NO ₂ | NO | 5.0 | 4.4 | No | 2.4 |
| MSAQ35 | New Way Lane Hustpierpoint | Rural | 528904 | 114415 | NO ₂ | NO | 20.0 | n/a | No | 1.8 |
| MSAQ36 | Lamp Post adjacent Bridgeway London Road East Grinstead | Roadside | 537612 | 139405 | NO ₂ | NO | 10.5 | 1.5 | No | 2.3 |
| MSAQ37 | Lamp Post adjacent 10 Station Road East Grinstead | Roadside | 538932 | 138472 | NO ₂ | NO | 5.1 | 2.5 | No | 2.3 |
| MSAQ38 | Lamp Post adjacent to 194 London Road East Grinstead | Roadside | 539004 | 138481 | NO ₂ | NO | 0.4 | 2.1 | No | 4.2 |
| MSAQ39 | Highway sign adjacent to 1 to 45 White Lion Close East Grinstead | Roadside | 539095 | 138404 | NO ₂ | NO | 1.1 | 2.8 | No | 2.3 |
| MSAQ40 | Telegraph Pole adjacent to | Roadside | 532892 | 118062 | NO ₂ | NO | 18.5 | 1.5 | 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) ⁽¹⁾ | Distance to kerb of nearest road (m) ⁽²⁾ | Tube Co-located with a Continuous Analyser? | Tube Height (m) |
|-------------------------------|---|-----------|-------------------------|--------------------------|----------------------|----------------------|--|---|---|-----------------|
| | Stroudley Drive Burgess Hill | | | | | | | | | |
| MSAQ41 | Prospect House Junction Road Burgess Hill | Roadside | 531745 | 118753 | NO ₂ | NO | 0.0 | 1.6 | No | 2.3 |
| MSAQ42 | 20 High Street Ardingly | Roadside | 534785 | 129560 | NO ₂ | NO | 0.2 | 0.7 | No | 2.0 |
| MSAQ43a MSAQ43b MSAQ43c | London Road East Grinstead | Roadside | 539090 | 138412 | NO ₂ | NO | 10.0 | 1.0 | Yes | 1.7 |
| MSAQ44 | Telegraph Pole High Street Handcross | Roadside | 526265 | 129898 | NO ₂ | NO | 0.6 | 1.7 | No | 2.2 |
| MSAQ45 | Telegraph Pole Cuckfield Road Ansty | Roadside | 529162 | 123346 | NO ₂ | NO | 2.0 | 0.9 | No | 2.2 |
| MSAQ46 | Lamp Post London Road Burgess Hill | Roadside | 530806 | 119776 | NO ₂ | NO | 3.4 | 1.7 | 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 NO₂ Monitoring Results: Automatic Monitoring (µg/m³)

| Site ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) ⁽¹⁾ | Valid Data Capture 2023 (%) ⁽²⁾ | 2019 | 2020 | 2021 | 2022 | 2023 |
|---------|-------------------------|--------------------------|-----------|---|--|------|------|------|------|------|
| MSAQ43 | 539090 | 138412 | Kerbside | 99.5 | 99.5 | | | | 24.3 | 21.1 |

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 NO₂ 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/m³.

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

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

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

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

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

Table A.4 – Annual Mean NO₂ Monitoring Results: Non-Automatic Monitoring (µg/m³)

| Diffusion Tube ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) ⁽¹⁾ | Valid Data Capture 2023 (%) ⁽²⁾ | 2019 | 2020 | 2021 | 2022 | 2023 |
|---------------------------------|-------------------------|--------------------------|-----------|---|--|------|------|------|------|------|
| MSAQ1 | 533342 | 123587 | Roadside | 100 | 100.0 | 19.3 | 12.7 | 14.8 | 14.4 | 12.9 |
| MSAQ3 | 538690 | 138759 | Kerbside | 100 | 100.0 | 31.7 | 22.7 | 23.4 | 22.8 | 19.7 |
| MSAQ5 | 541245 | 136996 | Suburban | 100 | 100.0 | 28.6 | 20.9 | 22.5 | 20.7 | 17.8 |
| MSAQ9 | 525664 | 125035 | Rural | 100 | 100.0 | 8.5 | 6.1 | 6.1 | 6.3 | 5.2 |
| MSAQ10 | 529911 | 115489 | Roadside | 100 | 100.0 | 39.4 | 28.4 | 31.3 | 30.7 | 28.0 |
| MSAQ11a, MSAQ11b, MSAQ11c | 529930 | 115481 | Roadside | 100 | 100.0 | 36.3 | 27.6 | 29.6 | 30.4 | 27.3 |
| MSAQ12 | 529999 | 115488 | Kerbside | 67.8 | 67.8 | 33.9 | 23.9 | 25.2 | 23.7 | 21.8 |
| MSAQ13 | 529995 | 115476 | Kerbside | 100 | 100.0 | 36.6 | 26.1 | 30.0 | 29.1 | 27.7 |
| MSAQ14 | 529911 | 115598 | Kerbside | 100 | 100.0 | 33.5 | 26.0 | 26.1 | 26.9 | 22.5 |
| MSAQ15 | 529930 | 115600 | Kerbside | 100 | 100.0 | 34.0 | 26.0 | 27.7 | 27.8 | 25.4 |
| MSAQ17 | 529894 | 115340 | Kerbside | 100 | 100.0 | 24.3 | 20.6 | 22.0 | 22.5 | 18.0 |
| MSAQ18 | 529907 | 115428 | Kerbside | 100 | 100.0 | 29.3 | 17.9 | 21.5 | 17.4 | 19.0 |
| MSAQ19 | 529779 | 115557 | Roadside | 100 | 100.0 | 15.7 | 11.9 | 13.5 | 12.4 | 11.3 |

| Diffusion Tube ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) ⁽¹⁾ | Valid Data Capture 2023 (%) ⁽²⁾ | 2019 | 2020 | 2021 | 2022 | 2023 |
|-------------------|-------------------------|--------------------------|-----------|---|--|-------------|------|------|------|------|
| MSAQ21 | 530792 | 119821 | Roadside | 65.6 | 32.4 | 27.6 | 21.0 | 24.0 | 20.2 | 18.8 |
| MSAQ22 | 532160 | 120069 | Roadside | 100 | 100.0 | 26.0 | 20.1 | 22.2 | 21.3 | 20.4 |
| MSAQ23 | 529935 | 115478 | Roadside | 100 | 100.0 | 33.4 | 23.4 | 24.4 | 25.7 | 24.2 |
| MSAQ24 | 529918 | 115476 | Roadside | 90.5 | 90.5 | 22.9 | 17.8 | 19.3 | 18.8 | 18.2 |
| MSAQ25 | 531176 | 138829 | Kerbside | 100 | 100.0 | 26.8 | 18.4 | 18.8 | 20.6 | 18.2 |
| MSAQ26 | 528289 | 116395 | Suburban | 92.4 | 92.4 | 21.5 | 16.1 | 16.8 | 16.8 | 15.3 |
| MSAQ27 | 526870 | 120238 | Suburban | 100 | 100.0 | 19.3 | 13.6 | 14.7 | 15.4 | 13.0 |
| MSAQ28 | 533342 | 122625 | Suburban | 100 | 100.0 | 25.3 | 22.2 | 22.4 | 24.5 | 21.4 |
| MSAQ29 | 539040 | 138452 | Roadside | 100 | 100.0 | 44.1 | 32.5 | 33.4 | 31.6 | 29.6 |
| MSAQ32 | 530791 | 120295 | Roadside | 100 | 100.0 | 13.7 | 11.2 | 11.4 | 12.3 | 10.6 |
| MSAQ34 | 531144 | 118862 | Roadside | 100 | 100.0 | 24.4 | 19.0 | 19.6 | 18.7 | 16.9 |
| MSAQ35 | 528904 | 114415 | Rural | 92.4 | 92.4 | 7.2 | 6.6 | 6.7 | 6.8 | 5.8 |
| MSAQ36 | 537612 | 139405 | Roadside | 100 | 100.0 | | 31.6 | 32.7 | 33.5 | 29.8 |
| MSAQ37 | 538932 | 138472 | Roadside | 100 | 100.0 | | 29.8 | 31.9 | 31.0 | 27.7 |

| Diffusion Tube ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) ⁽¹⁾ | Valid Data Capture 2023 (%) ⁽²⁾ | 2019 | 2020 | 2021 | 2022 | 2023 |
|---------------------------------|-------------------------|--------------------------|-----------|---|--|------|------|------|------|------|
| MSAQ38 | 539004 | 138481 | Roadside | 91.1 | 91.1 | | 20.4 | 20.6 | 21.0 | 17.0 |
| MSAQ39 | 539095 | 138404 | Roadside | 100 | 100.0 | | 23.6 | 25.0 | 25.3 | 21.3 |
| MSAQ40 | 532892 | 118062 | Roadside | 100 | 100.0 | | 11.5 | 13.1 | 12.5 | 10.4 |
| MSAQ41 | 531745 | 118753 | Roadside | 100 | 100.0 | | | 18.6 | 18.2 | 16.2 |
| MSAQ42 | 534785 | 129560 | Roadside | 90.5 | 90.5 | | | 21.4 | 20.6 | 18.6 |
| MSAQ43a, MSAQ43b, MSAQ43c | 539090 | 138412 | Roadside | 100 | 100.0 | | | | 27.4 | 22.5 |
| MSAQ44 | 526265 | 129898 | Roadside | 83.2 | 83.2 | | | | | 20.3 |
| MSAQ45 | 529162 | 123346 | Roadside | 91.1 | 91.1 | | | | | 35.0 |
| MSAQ46 | 530806 | 119776 | Roadside | 100 | 50.4 | | | | | 19.5 |

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 NO₂ annual mean objective of $40\mu\text{g}/\text{m}^3$ 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**.

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 NO₂ Concentrations

Nitrogen Dioxide Monitoring Trends at East Grinstead sites 2019 - 2023

| Year | London Road East Grinstead MSAQ3 | Lewes Road East Grinstead MSAQ5 | 184 London Road East Grinstead MSAQ29 | Imberhorne Lane East Grinstead MSAQ31 | Lamp Post adj Bridgeway London Road East Grinstead MSAQ36 | Lamp Post adj 10 Station Road East Grinstead MSAQ37 | Lamp Post adj La Farola London Road East Grinstead MSAQ38 | Lamp Post adj 1 to 45 White Lion Close East Grinstead MSAQ39 |
|------|----------------------------------|---------------------------------|---------------------------------------|---------------------------------------|---|---|---|--|
| 2019 | 31.7 | 28.6 | 44.1 | 13.2 | | | | |
| 2020 | 22.7 | 20.9 | 32.5 | 10.3 | 31.6 | 29.8 | 20.4 | 23.6 |
| 2021 | 23.4 | 22.5 | 33.4 | 11.2 | 32.7 | 31.9 | 20.6 | 25.0 |
| 2022 | 22.8 | 20.7 | 31.6 | 11.3 | 33.5 | 31.0 | 21.0 | 25.3 |
| 2023 | 19.7 | 17.8 | 29.6 | Site retired | 29.8 | 27.7 | 17.0 | 21.3 |

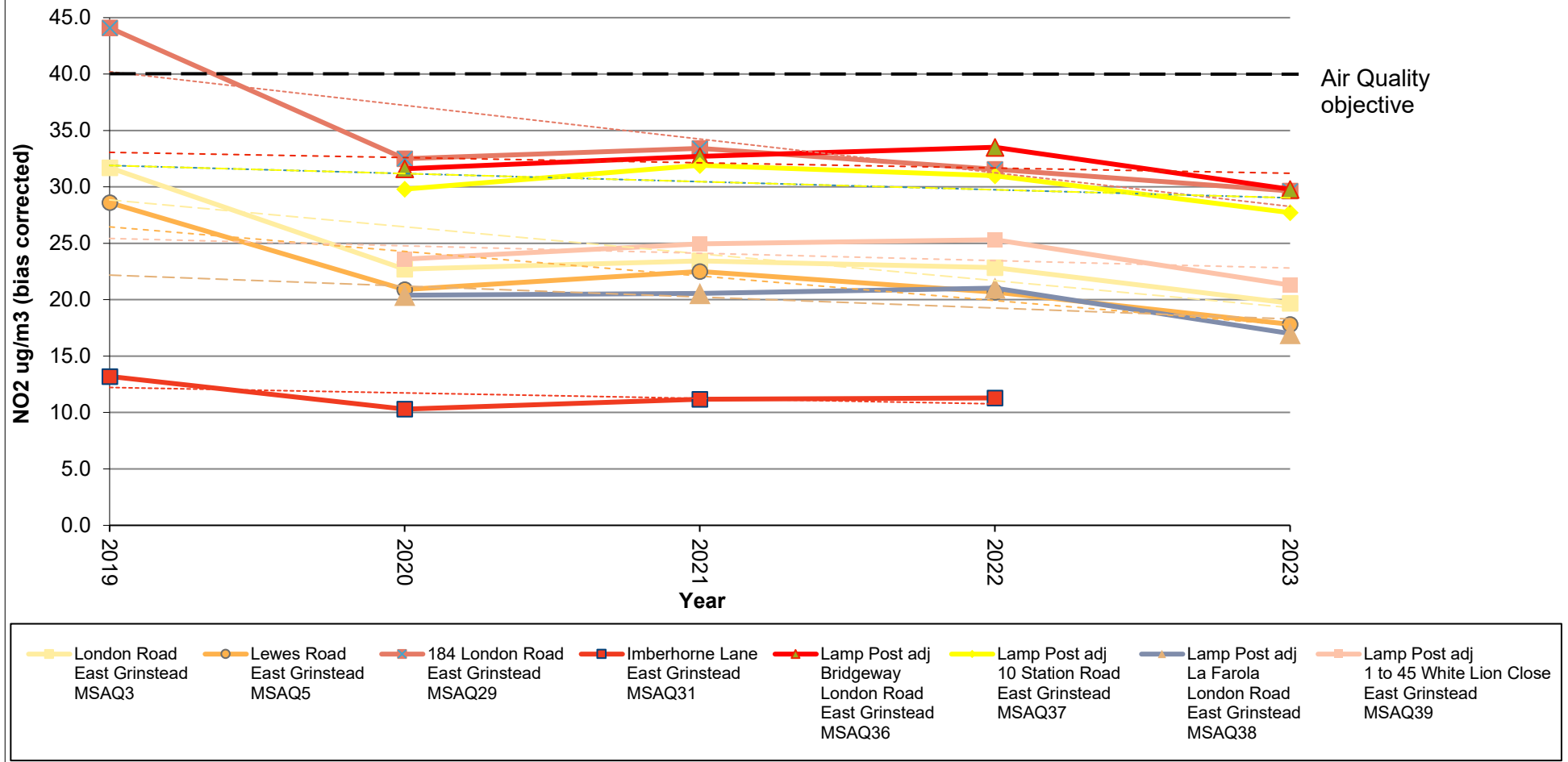
Exceedances of the NO₂ annual mean objective of 40µg/m³ are shown in **bold**.

Sites MSAQ3, 5, and 29, have shown a reduction in recorded levels from 2019 to 2023.

Sites MSAQ36, 38 and 39 levels have shown an increase from 2020 to 2022 followed by a reduction in 2023.

All are currently below the Air Quality Objective of 40µg/m³.

Nitrogen Dioxide Monitoring Trends at East Grinstead sites 2019 - 2023

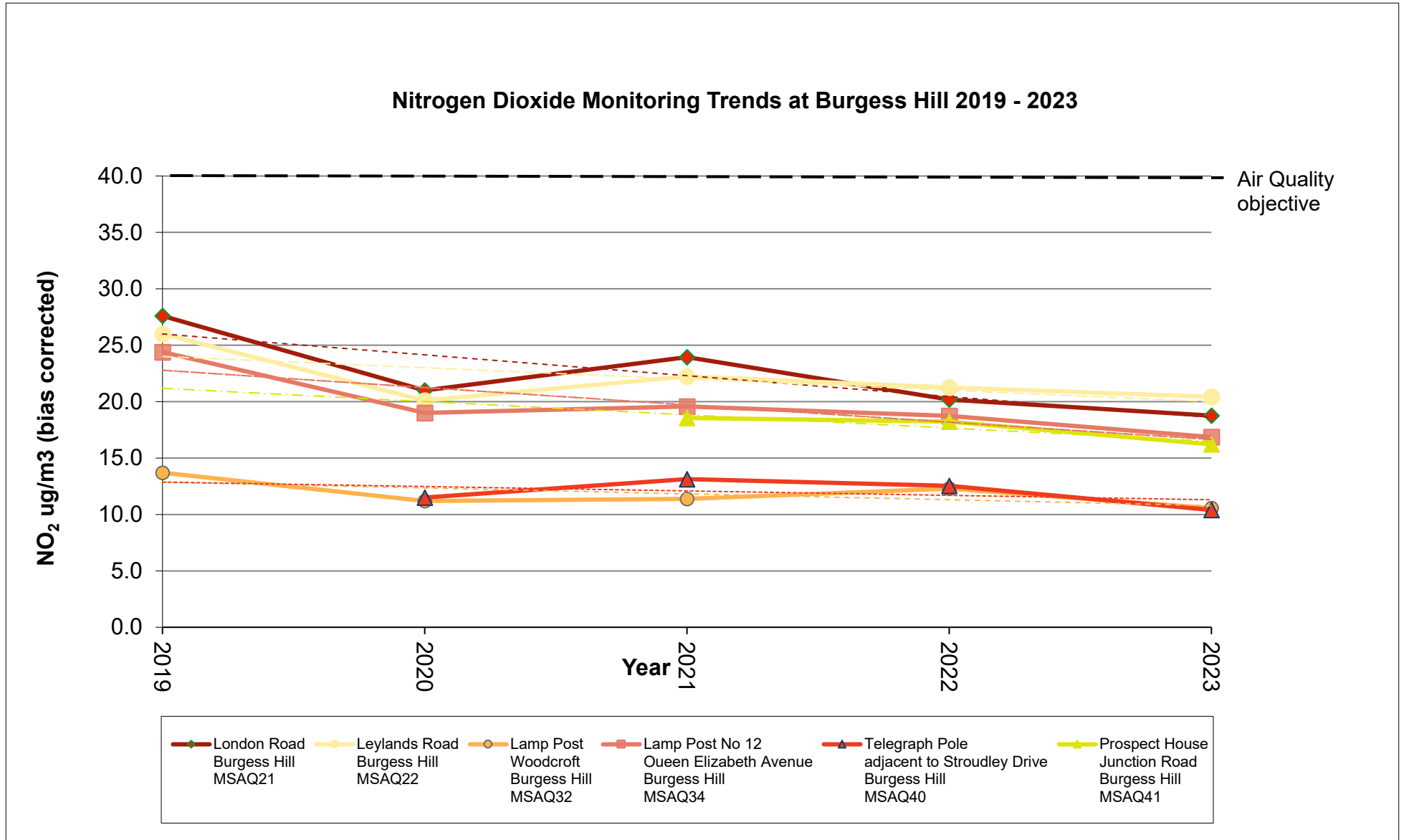


Nitrogen Dioxide Monitoring Trends at Burgess Hill 2019 – 2023

| Year | London Road Burgess Hill MSAQ21 | Leylands Road Burgess Hill MSAQ22 | Lamp Post Woodcroft Burgess Hill MSAQ32 | Lamp Post No 12 Queen Elizabeth Avenue Burgess Hill MSAQ34 | Telegraph Pole adjacent to Stroudley Drive Burgess Hill MSAQ40 | Prospect House Junction Road Burgess Hill MSAQ41 |
|------|---------------------------------------|---|--|--|---|--|
| 2019 | 27.6 | 26.0 | 13.7 | 24.4 | | |
| 2020 | 21.0 | 20.1 | 11.2 | 19.0 | 11.5 | |
| 2021 | 24.0 | 22.2 | 11.4 | 19.6 | 13.1 | 18.6 |
| 2022 | 20.2 | 21.3 | 12.3 | 18.7 | 12.5 | 18.2 |
| 2023 | 18.8 | 20.4 | 10.6 | 16.9 | 10.4 | 16.2 |

All of the sites have shown a reduction in recorded levels from 2019 to 2023.
All are currently below the Air Quality Objective of 40µg/m³.

Nitrogen Dioxide Monitoring Trends at Burgess Hill 2019 - 2023



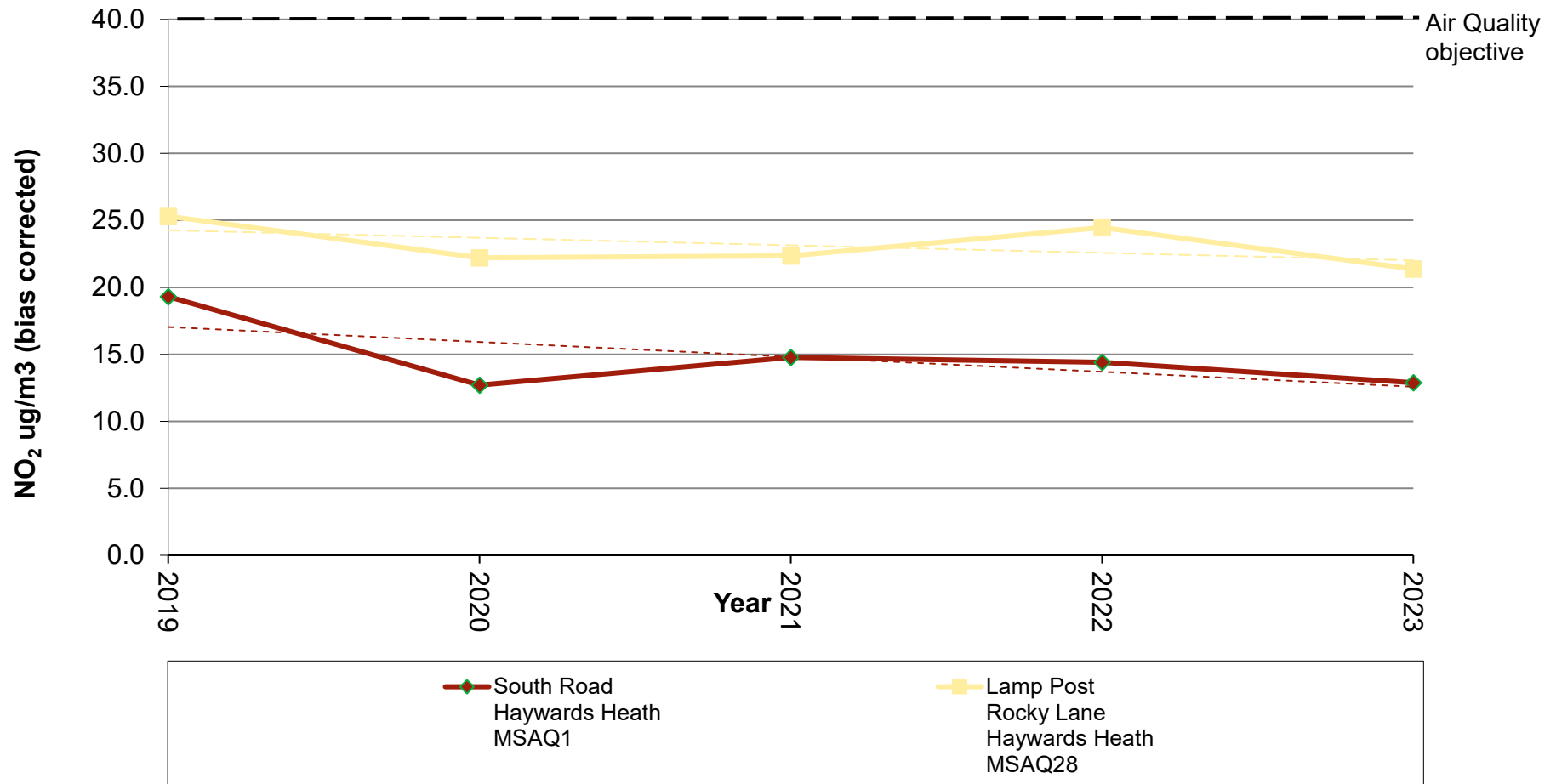
Nitrogen Dioxide Monitoring Trends at Haywards Heath 2019 – 2023

| Year | South Road Haywards Heath MSAQ1 | Lamp Post Rocky Lane Haywards Heath MSAQ28 |
|------|--|---|
| 2019 | 19.3 | 25.3 |
| 2020 | 12.7 | 22.2 |
| 2021 | 14.8 | 22.4 |
| 2022 | 14.4 | 24.5 |
| 2023 | 12.9 | 21.4 |

All of the sites have shown a reduction in recorded levels from 2019 to 2023.

All are currently below the Air Quality Objective of 40µg/m³.

Nitrogen Dioxide Monitoring Trends at Haywards Heath 2019 - 2023



Nitrogen Dioxide Monitoring Trends at 4 Villages and 2 Rural Background Sites 2019 - 2023

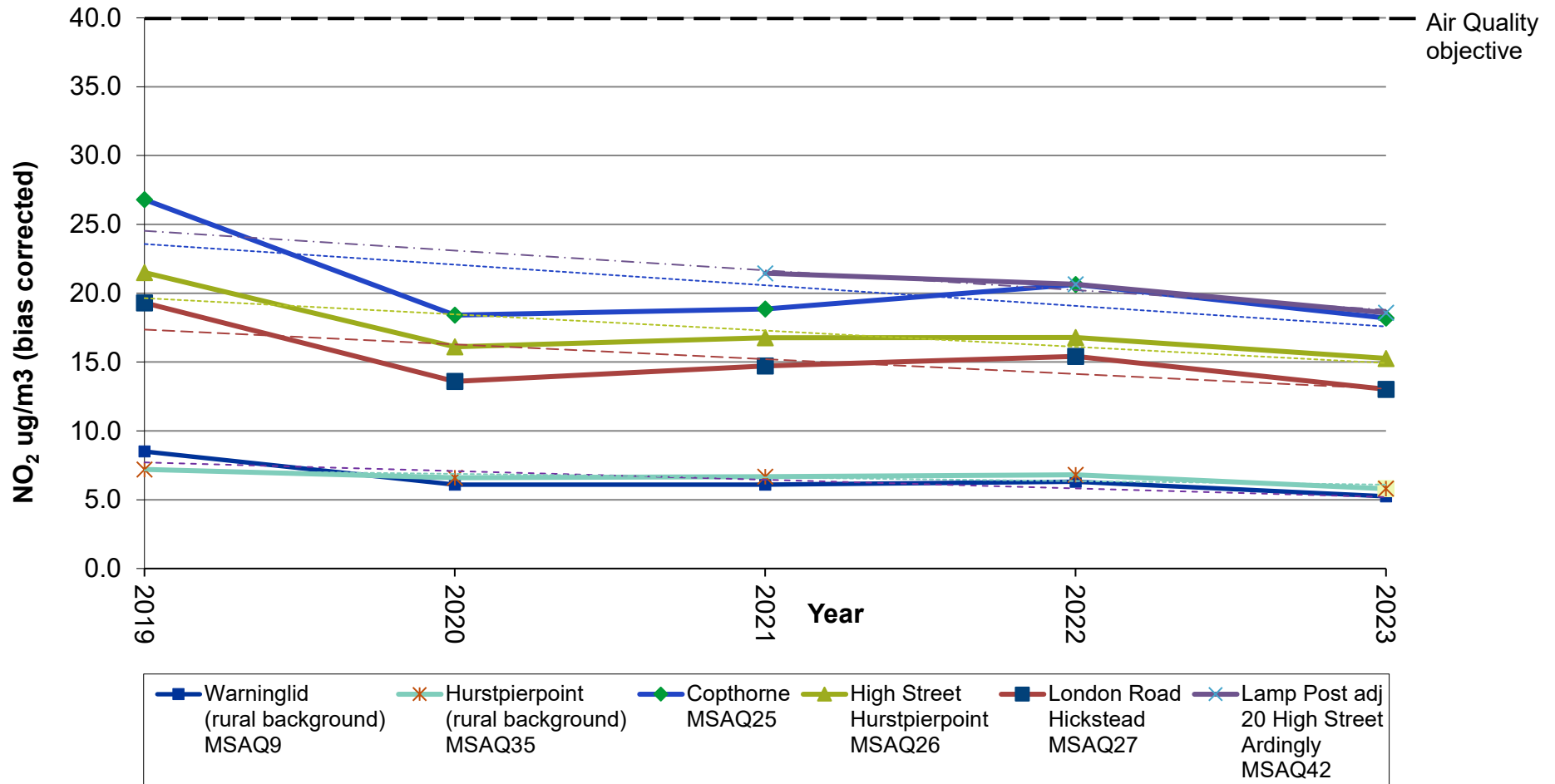
| Year | Warninglid (rural background) MSAQ9 | Hurstpierpoint (rural background) MSAQ35 | Copthorne MSAQ25 | High Street Hurstpierpoint MSAQ26 | London Road Hickstead MSAQ27 | Lamp Post adj 20 High Street Ardingly MSAQ42 |
|------|---|--|---------------------|---|------------------------------------|---|
| 2019 | 8.5 | 7.2 | 26.8 | 21.5 | 19.3 | |
| 2020 | 6.1 | 6.6 | 18.4 | 16.1 | 13.6 | |
| 2021 | 6.1 | 6.7 | 18.8 | 16.8 | 14.7 | 21.4 |
| 2022 | 6.3 | 6.8 | 20.6 | 16.8 | 15.4 | 20.6 |
| 2023 | 5.2 | 5.8 | 18.2 | 15.3 | 13.0 | 18.6 |

MSAQ9, 25, 26, 27 and 35 all have shown a reduction in recorded levels from 2019 to 2023.

MSAQ42 has shown a level reduction from 2021 to 2023.

All are currently below the Air Quality Objective of 40µg/m³.

Nitrogen Dioxide Monitoring Trends at 4 Villages and 2 Rural Background Sites 2019 - 2023



Nitrogen Dioxide Monitoring Trends at Hassocks 2019 – 2023

| Year | Telegraph Pole Keymer Road Hassocks MSAQ12 | Lamp Post Keymer Road Hassocks MSAQ13 | Traffic lights Keymer Road Hassocks MSAQ10 | Northern Façade (residential premises) Keymer Road Hassocks MSAQ11 | Eastern Façade (residential premises) Keymer Road Hassocks MSAQ23 |
|------|---|--|---|--|---|
| 2019 | 33.9 | 36.6 | 39.4 | 36.3 | 33.4 |
| 2020 | 23.9 | 26.1 | 28.4 | 27.6 | 23.4 |
| 2021 | 25.2 | 30.0 | 31.3 | 29.6 | 24.4 |
| 2022 | 23.7 | 29.1 | 30.7 | 30.4 | 25.7 |
| 2023 | 21.8 | 27.7 | 28.0 | 27.3 | 24.2 |

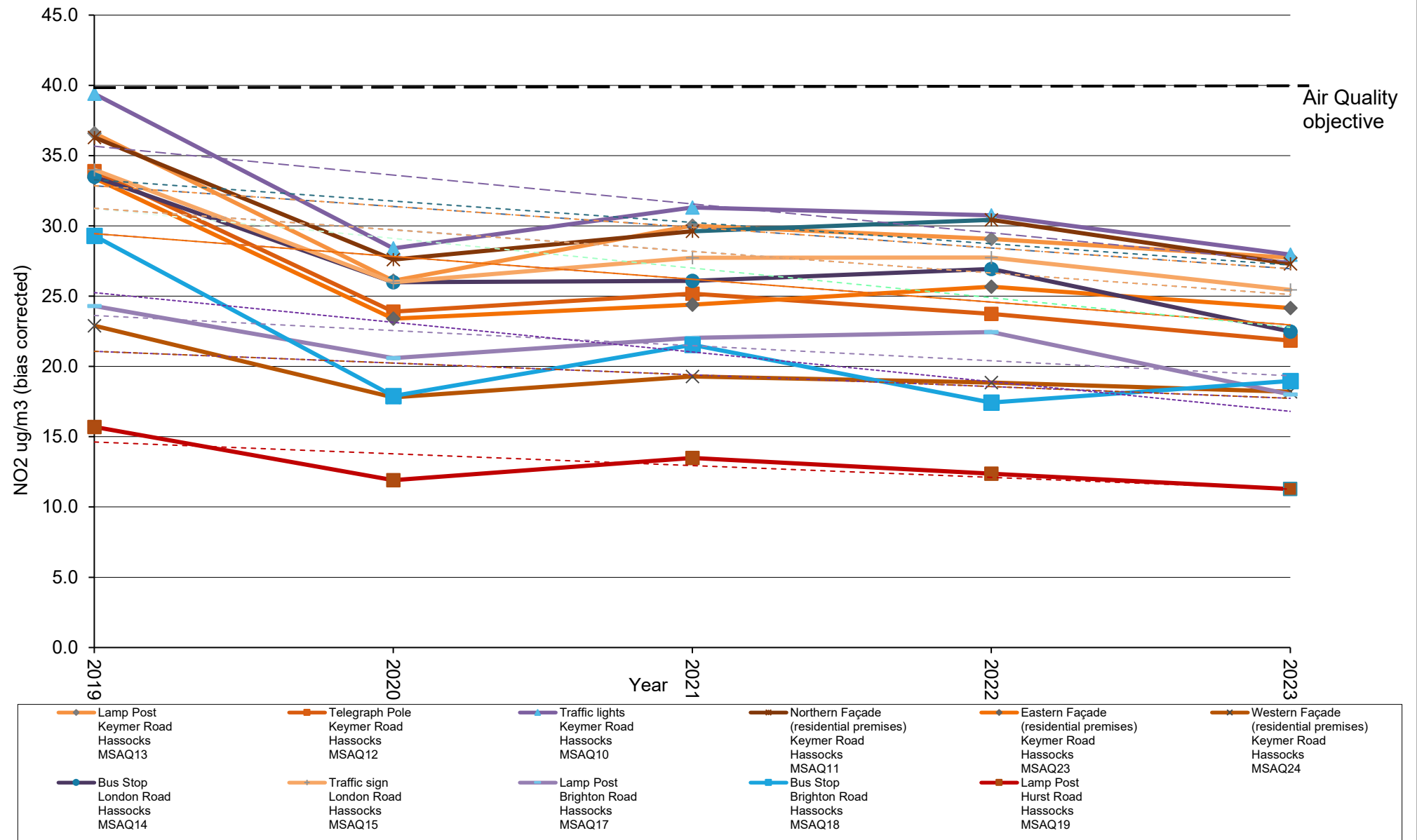
| Year | Western Façade (residential premises) Keymer Road Hassocks MSAQ24 | Bus Stop London Road Hassocks MSAQ14 | Traffic sign London Road Hassocks MSAQ15 | Lamp Post Brighton Road Hassocks MSAQ17 | Bus Stop Brighton Road Hassocks MSAQ18 | Lamp Post Hurst Road Hassocks MSAQ19 |
|------|---|---|---|--|---|---|
| 2019 | 22.9 | 33.5 | 34.0 | 24.3 | 29.3 | 15.7 |
| 2020 | 17.8 | 26.0 | 26.0 | 20.6 | 17.9 | 11.9 |
| 2021 | 19.3 | 26.1 | 27.7 | 22.0 | 21.5 | 13.5 |
| 2022 | 18.8 | 26.9 | 27.8 | 22.5 | 17.4 | 12.4 |
| 2023 | 18.2 | 22.5 | 25.4 | 18.0 | 19.0 | 11.3 |

All of the sites have shown a reduction in recorded levels from 2019 to 2023 and a slight increase in 2021. MSAQ10, 12, 13, 18, 19 and 24 levels reduced slightly in 2022 whilst those at sites MSAQ 11, 14, 15, 17 and 23 showed a slight increase.

All sites have shown an overall reduction in recorded levels from 2019 to 2023.

All are currently below the Air Quality Objective of $40\mu\text{g}/\text{m}^3$

Nitrogen Dioxide Monitoring Trends at Hassocks 2019 - 2023



Nitrogen Dioxide Monitoring Trends in AQMA Hassocks 2019 – 2023

| Year | Traffic lights Keymer Road Hassocks MSAQ10 | Northern Façade (residential premises) Keymer Road Hassocks MSAQ11 | Eastern Façade (residential premises) Keymer Road Hassocks MSAQ23 | Western Façade (residential premises) Keymer Road Hassocks MSAQ24 |
|-------------|---|---|--|--|
| 2019 | 39.4 | 36.3 | 33.4 | 22.9 |
| 2020 | 28.4 | 27.6 | 23.4 | 17.8 |
| 2021 | 31.3 | 29.6 | 24.4 | 19.3 |
| 2022 | 30.7 | 30.4 | 25.7 | 18.8 |
| 2023 | 28.0 | 27.3 | 24.2 | 18.2 |

There has been an overall reduction in the levels recorded at the sites within the AQMA area since it was declared in 2012. Currently none of the sites have recorded NO₂ levels above the Air Quality Objective.

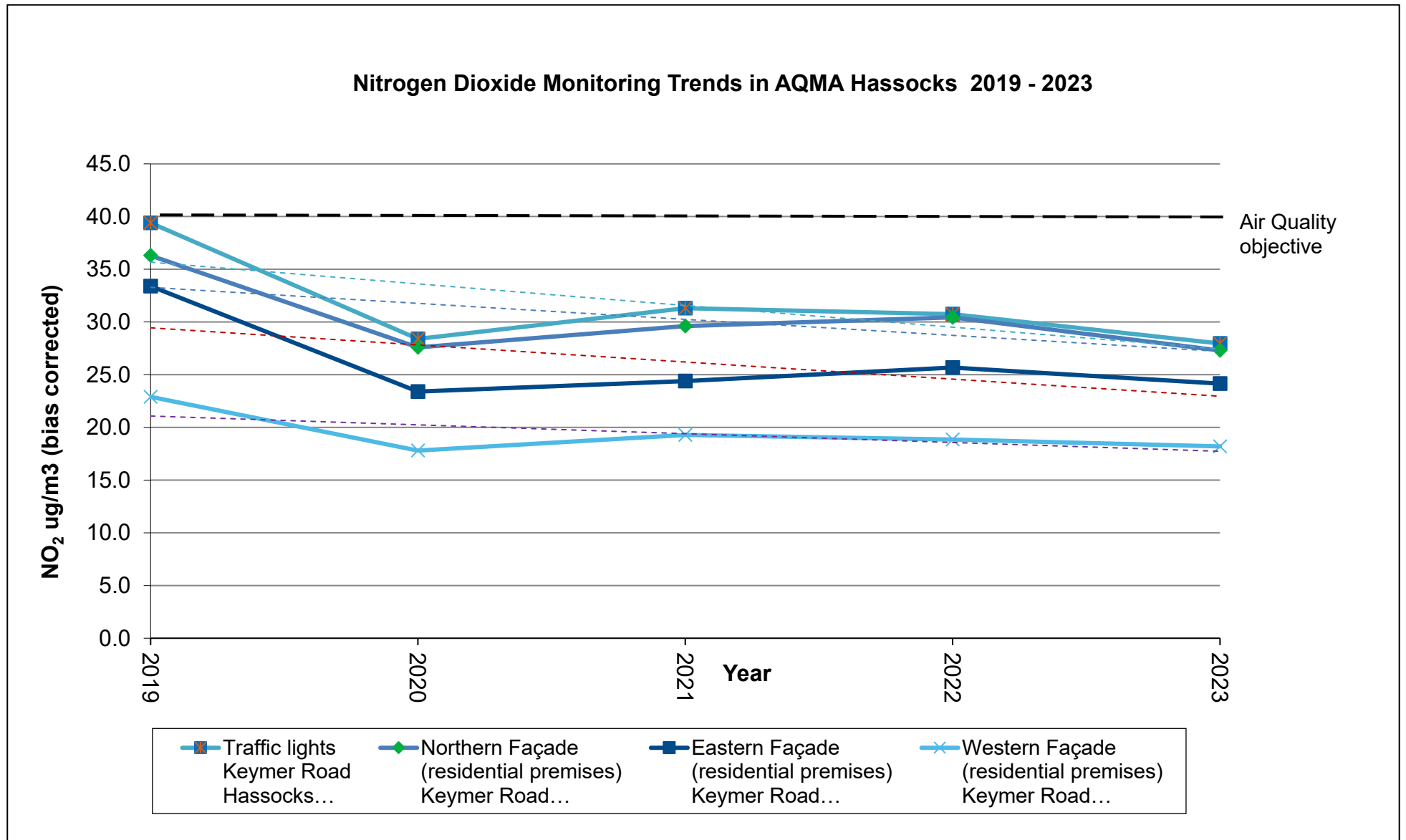


Table A.5 – 1-Hour Mean NO₂ Monitoring Results, Number of 1-Hour Means > 200µg/m³

| Site ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) ⁽¹⁾ | Valid Data Capture 2023 (%) ⁽²⁾ | 2019 | 2020 | 2021 | 2022 | 2023 |
|---------|-------------------------|--------------------------|-----------|---|--|------|------|------|-----------------|------|
| MSAQ43 | 539090 | 138412 | Kerbside | 99.5 | 99.5 | | | | 0 (93.1) | 0 |

Notes:

Results are presented as the number of 1-hour periods where concentrations greater than 200µg/m³ have been recorded.

Exceedances of the NO₂ 1-hour mean objective (200µg/m³ not to be exceeded more than 18 times/year) are shown in **bold**.

If the period of valid data is less than 85%, the 99.8th percentile of 1-hour means is provided in brackets.

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

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

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

| Site ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) ⁽¹⁾ | Valid Data Capture 2023 (%) ⁽²⁾ | 2019 | 2020 | 2021 | 2022 | 2023 |
|---------|-------------------------|--------------------------|-----------|---|--|------|------|------|------|------|
| MSAQ43 | 539090 | 138412 | Kerbside | 99.5 | 99.5 | | | | 18.8 | 17.0 |

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

Notes:

The annual mean concentrations are presented as µg/m³.

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

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

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

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

Table A.7 – 24-Hour Mean PM₁₀ Monitoring Results, Number of PM₁₀ 24-Hour Means > 50µg/m³

| Site ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) ⁽¹⁾ | Valid Data Capture 2023 (%) ⁽²⁾ | 2019 | 2020 | 2021 | 2022 | 2023 |
|---------|-------------------------|--------------------------|-----------|---|--|------|------|------|-----------------|------|
| MSAQ43 | 539090 | 138412 | Kerbside | 99.5 | 99.5 | | | | 0 (26.5) | 1 |

Notes:

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

Exceedances of the PM₁₀ 24-hour mean objective (50µg/m³ not to be exceeded more than 35 times/year) are shown in **bold**.

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

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

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

Appendix B: Full Monthly Diffusion Tube Results for 2023

Table B.1 – NO₂ 2023 Diffusion Tube Results (µg/m³)

| DT ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual Mean: Raw Data | Annual Mean: Annualised and Bias Adjusted (0.81) | Annual Mean: Distance Corrected to Nearest Exposure | Comment |
|----------|-------------------------|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|-----------------------|--|---|---|
| MSAQ 1 | 533342 | 123587 | 22.5 | 20.8 | 16.6 | 15.1 | 11.5 | 12.9 | 12.9 | 13.9 | 15.5 | 16.2 | 20.1 | 12.8 | 15.9 | 12.9 | - | |
| MSAQ 3 | 538690 | 138759 | 31.9 | 31.3 | 24.4 | 22.4 | 18.6 | 19.5 | 22.0 | 22.7 | 25.8 | 27.2 | 27.4 | 18.5 | 24.3 | 19.7 | - | |
| MSAQ 5 | 541245 | 136996 | 29.7 | 26.9 | 22.4 | 19.3 | 16.6 | 17.6 | 20.0 | 21.2 | 24.2 | 24.8 | 22.9 | 18.4 | 22.0 | 17.8 | - | |
| MSAQ 9 | 525664 | 125035 | 9.4 | 10.8 | 6.7 | 6.3 | 5.8 | 5.0 | 4.3 | 4.9 | 5.2 | 6.4 | 8.2 | 4.7 | 6.5 | 5.2 | - | |
| MSAQ 10 | 529911 | 115489 | 40.2 | 45.2 | 31.8 | 34.6 | 43.1 | 38.2 | 20.3 | 34.0 | 32.9 | 34.5 | 37.6 | 21.8 | 34.5 | 28.0 | - | |
| MSAQ 11a | 529930 | 115481 | 39.9 | 36.7 | 32.8 | 33.8 | 34.7 | 36.2 | 24.1 | 30.6 | 35.1 | 34.8 | 32.7 | 28.2 | - | - | - | Triplicate Site with MSAQ11a, MSAQ11b and MSAQ11c - Annual data provided for MSAQ11c only |
| MSAQ 11b | 529930 | 115481 | 37.9 | 36.7 | 34.6 | 34.6 | 35.6 | 34.1 | 31.1 | 32.0 | 35.7 | 34.7 | 34.2 | 25.8 | - | - | - | Triplicate Site with MSAQ11a, MSAQ11b and MSAQ11c - Annual data provided for MSAQ11c only |
| MSAQ 11c | 529930 | 115481 | 38.9 | 36.9 | | 34.3 | 35.1 | 35.2 | 31.5 | 32.3 | 34.8 | 34.3 | 33.4 | 26.2 | 33.7 | 27.3 | - | Triplicate Site with MSAQ11a, MSAQ11b and MSAQ11c - Annual data provided for MSAQ11c only |
| MSAQ 12 | 529999 | 115488 | 38.1 | 38.4 | 27.2 | 29.3 | 25.3 | 27.5 | | | | | 31.4 | 21.1 | 29.8 | 21.8 | - | |
| MSAQ 13 | 529995 | 115476 | 43.1 | 44.3 | 35.9 | 38.2 | 37.3 | 32.9 | 23.1 | 31.5 | 31.9 | 30.7 | 36.2 | 25.8 | 34.2 | 27.7 | - | |
| MSAQ 14 | 529911 | 115598 | 27.7 | 31.8 | 26.0 | 30.1 | 21.3 | 28.2 | 25.6 | 26.7 | 34.4 | 33.9 | 26.7 | 20.7 | 27.8 | 22.5 | - | |
| MSAQ 15 | 529930 | 115600 | 37.4 | 36.2 | 33.9 | 31.6 | 31.5 | 30.4 | 29.6 | 29.1 | 29.3 | 30.1 | 32.4 | 25.5 | 31.4 | 25.4 | - | |
| MSAQ 17 | 529894 | 115340 | 31.2 | 42.6 | 25.2 | 23.9 | 18.3 | 18.1 | 21.2 | 17.1 | 18.8 | 18.3 | 20.2 | 11.9 | 22.2 | 18.0 | - | |
| MSAQ 18 | 529907 | 115428 | 22.5 | 25.7 | 17.9 | 18.9 | 28.9 | 27.3 | 14.0 | 23.8 | 28.5 | 27.2 | 30.0 | 16.4 | 23.4 | 19.0 | - | |
| MSAQ 19 | 529779 | 115557 | 20.6 | 21.0 | 15.2 | 13.8 | 9.7 | 11.3 | 11.8 | 11.7 | 13.3 | 12.6 | 15.7 | 10.3 | 13.9 | 11.3 | - | |
| MSAQ 21 | 530792 | 119821 | 34.1 | 35.0 | 24.9 | 27.2 | | | | | | | | | 30.3 | 18.8 | - | |
| MSAQ 22 | 532160 | 120069 | 35.5 | 33.4 | 26.6 | 25.2 | 27.5 | 22.1 | 17.3 | 18.3 | 21.9 | 22.7 | 28.6 | 23.4 | 25.2 | 20.4 | - | |

| DT ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual Mean: Raw Data | Annual Mean: Annualised and Bias Adjusted (0.81) | Annual Mean: Distance Corrected to Nearest Exposure | Comment |
|----------|-------------------------|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|-----------------------|--|---|---|
| MSAQ 23 | 529935 | 115478 | 35.9 | 37.1 | 28.5 | 29.2 | 31.7 | 30.4 | 31.2 | 25.8 | 27.3 | 26.8 | 31.2 | 22.7 | 29.8 | 24.2 | - | |
| MSAQ 24 | 529918 | 115476 | 28.2 | 26.9 | 21.2 | 24.0 | 29.9 | 22.9 | 14.9 | 17.5 | 17.7 | 23.6 | | 20.3 | 22.5 | 18.2 | - | |
| MSAQ 25 | 531176 | 138829 | 26.3 | 26.5 | 22.7 | 21.6 | 15.0 | 20.9 | 21.9 | 21.7 | 24.1 | 25.8 | 25.3 | 17.7 | 22.5 | 18.2 | - | |
| MSAQ 26 | 528289 | 116395 | 26.5 | 24.6 | 19.2 | 17.9 | | 16.5 | 13.4 | 15.6 | 17.9 | 17.6 | 23.3 | 14.8 | 18.8 | 15.3 | - | |
| MSAQ 27 | 526870 | 120238 | 19.6 | 24.3 | 16.5 | 17.8 | 18.0 | 14.7 | 9.9 | 13.4 | 15.5 | 16.0 | 17.6 | 9.6 | 16.1 | 13.0 | - | |
| MSAQ 28 | 533342 | 122625 | 31.8 | 33.3 | 30.5 | 27.5 | 20.0 | 22.9 | 22.4 | 23.5 | 26.6 | 25.8 | 30.4 | 21.8 | 26.4 | 21.4 | - | |
| MSAQ 29 | 539040 | 138452 | 40.6 | 47.7 | 38.4 | 39.1 | 32.5 | 31.8 | 32.8 | 32.7 | 38.5 | 37.5 | 38.5 | 29.0 | 36.6 | 29.6 | - | |
| MSAQ 32 | 530791 | 120295 | 21.0 | 16.4 | 13.1 | 11.1 | 9.8 | 10.6 | 10.2 | 10.8 | 11.2 | 11.7 | 18.1 | 12.4 | 13.0 | 10.6 | - | |
| MSAQ 34 | 531144 | 118862 | 28.0 | 27.5 | 21.2 | 22.1 | 17.0 | 19.6 | 14.4 | 18.2 | 20.0 | 20.3 | 25.4 | 16.1 | 20.8 | 16.9 | - | |
| MSAQ 35 | 528904 | 114415 | 11.1 | 10.4 | 8.5 | 7.2 | 5.7 | 5.3 | | 5.1 | 5.4 | 6.3 | 8.4 | 5.3 | 7.2 | 5.8 | - | |
| MSAQ 36 | 537612 | 139405 | 45.4 | 43.3 | 37.8 | 39.7 | 31.1 | 33.3 | 34.5 | 25.9 | 38.4 | 39.9 | 42.6 | 29.4 | 36.8 | 29.8 | - | |
| MSAQ 37 | 538932 | 138472 | 40.2 | 43.0 | 34.9 | 36.6 | 27.5 | 28.3 | 29.5 | 31.2 | 38.5 | 39.8 | 37.0 | 24.1 | 34.2 | 27.7 | - | |
| MSAQ 38 | 539004 | 138481 | | 28.5 | 23.1 | 22.2 | 17.0 | 19.8 | 19.0 | 21.9 | 24.0 | 23.6 | 16.0 | 15.8 | 21.0 | 17.0 | - | |
| MSAQ 39 | 539095 | 138404 | 32.3 | 32.1 | 27.3 | 27.5 | 22.0 | 23.0 | 23.1 | 25.7 | 27.8 | 27.1 | 28.2 | 19.4 | 26.3 | 21.3 | - | |
| MSAQ 40 | 532892 | 118062 | 18.7 | 19.3 | 11.8 | 13.0 | 12.0 | 11.3 | 8.3 | 10.8 | 11.5 | 12.9 | 15.0 | 9.4 | 12.8 | 10.4 | - | |
| MSAQ 41 | 531745 | 118753 | 25.9 | 26.7 | 21.0 | 18.8 | 18.0 | 17.1 | 17.1 | 17.1 | 18.6 | 20.0 | 23.9 | 16.0 | 20.0 | 16.2 | - | |
| MSAQ 42 | 534785 | 129560 | 31.0 | 32.9 | 23.5 | 25.0 | 20.5 | 19.8 | 15.1 | 20.2 | 23.4 | 22.4 | | 18.5 | 22.9 | 18.6 | - | |
| MSAQ 43a | 539090 | 138412 | 34.9 | 35.6 | 27.4 | 33.8 | 30.1 | 26.9 | 20.0 | 27.5 | 29.1 | 29.0 | 30.8 | 18.2 | - | - | - | Triplicate Site with MSAQ43a, MSAQ43b and MSAQ43c - Annual data provided for MSAQ43c only |
| MSAQ 43b | 539090 | 138412 | 33.6 | 35.3 | 27.3 | 32.8 | 28.7 | 25.7 | 19.6 | 26.5 | 28.3 | 27.5 | 31.2 | 18.4 | - | - | - | Triplicate Site with MSAQ43a, MSAQ43b and MSAQ43c - Annual data provided for MSAQ43c only |
| MSAQ 43c | 539090 | 138412 | 31.1 | 35.1 | 24.5 | 32.1 | 28.1 | 25.2 | 19.2 | 25.1 | 26.2 | 27.9 | 28.8 | 18.7 | 27.8 | 22.5 | - | Triplicate Site with MSAQ43a, MSAQ43b and MSAQ43c - |

| 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 (0.81) | Annual Mean: Distance Corrected to Nearest Exposure | Comment |
|---------|-------------------------|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|-----------------------|--|---|---------------------------------------|
| | | | | | | | | | | | | | | | | | | Annual data provided for MSAQ43c only |
| MSAQ 44 | 526265 | 129898 | 31.1 | 30.4 | | 22.3 | | 22.1 | 23.2 | 22.6 | 25.8 | 27.0 | 26.6 | 19.8 | 25.1 | 20.3 | - | |
| MSAQ 45 | 529162 | 123346 | 45.6 | 51.1 | 40.3 | 46.4 | 43.4 | 41.7 | 39.3 | 38.4 | 44.4 | 40.1 | 44.1 | | 43.2 | 35.0 | - | |
| MSAQ 46 | 530806 | 119776 | | | | | | | 16.0 | 19.0 | 21.9 | 23.0 | 27.4 | 17.6 | 20.8 | 19.5 | - | |

- All erroneous data has been removed from the NO₂ diffusion tube dataset presented in Table B.1.
- Annualisation has been conducted where data capture is <75% and >25% in line with 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.
- Mid Sussex confirm that all 2023 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.

Notes:

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

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

See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within Mid Sussex During 2023

Mid Sussex District Council has not identified any new sources relating to air quality within the reporting year of 2023.

Additional Air Quality Works Undertaken by Mid Sussex During 2023

Mid Sussex has not completed any additional works within the reporting year of 2023.

QA/QC of Diffusion Tube Monitoring

The tubes are supplied by Gradko laboratories and are prepared using 20% TEA in water.

Results for the nitrogen dioxide diffusion colocation studies available at [Precision and Accuracy | LAQM \(defra.gov.uk\)](#) show Gradko laboratory had good precision for 2023.

The 2023 Diffusion Tube Monitoring Calendar was adhered to except in February 2023 when the installation date was changed from 2 to 7 (due to staff sickness) and January 2024 when the installation date was changed from 3 to 10 due to adverse weather conditions.

Diffusion Tube Annualisation

Using the Diffusion_Tube_Data_Processing_Tool_v4.0 for sites MSAQ 12, 21 and 46 which required annualization the simple annual mean has been calculated.

Table C.1 – Annualisation Summary (concentrations presented in µg/m³)

| Site ID | Annualisation Factor Site 1 (AURN) Lullington Heath Wealden | Annualisation Factor Site 2 (AURN) Preston Park Brighton | Average Annualisation Factor | Raw Data Annual Mean | Annualised Annual Mean |
|---------|--|---|------------------------------------|----------------------------|---------------------------|
| MSAQ12 | 0.8718 | 0.9384 | 0.9051 | 29.8 | 27.0 |
| MSAQ21 | 0.6974 | 0.8313 | 0.7643 | 30.3 | 23.2 |
| MSAQ46 | 1.2625 | 1.0506 | 1.1565 | 20.8 | 24.1 |

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2023 ASR have been corrected for bias using an adjustment factor. Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference chemiluminescence analyser. LAQM.TG22 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO_x/NO₂ continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

Mid Sussex have applied a national bias adjustment factor of 0.81 to the 2023 monitoring data. A summary of bias adjustment factors used by Mid Sussex over the past five years is presented in Table C.2.

Table C.2 – Bias Adjustment Factor

| Monitoring Year | Local or National | If National, Version of National Spreadsheet | Adjustment Factor |
|-----------------|-------------------|---|-------------------|
| 2023 | National | V03_24 | 0.81 |
| 2022 | National | V03_23 | 0.83 |
| 2021 | National | v03_22 | 0.84 |
| 2020 | National | v03_21 | 0.91 |
| 2019 | National | v03_20 | 0.93 |

Table C.3 – Local Bias Adjustment Calculation

| | Local Bias Adjustment |
|--|-----------------------|
| Periods used to calculate bias | 11 |
| Bias Factor A | 0.77 (0.73 - 0.81) |
| Bias Factor B | 30% (24% - 37%) |
| Diffusion Tube Mean ($\mu\text{g}/\text{m}^3$) | 28.6 |
| Mean CV (Precision) | 3.8% |
| Automatic Mean ($\mu\text{g}/\text{m}^3$) | 22.0 |
| Data Capture | 100% |
| Adjusted Tube Mean ($\mu\text{g}/\text{m}^3$) | 22 (21 - 23) |

Local Bias Adjustment Factor = 0.77

Notes:

A national bias adjustment factor has been used to bias adjust the 2023 diffusion tube results. Defra guidance TG22 explains how to choose between local and national bias adjustment factors, including consideration of tube exposure time (monthly), length of the monitoring study (annual), QA/QC factors, and siting of the analyser and diffusion tubes.

Our conclusion is that the factors support us using the national bias adjustment:

Our diffusion tubes are exposed over a wide range of settings, including open sites, canyon type sites, urban, rural, roadside, facade etc. TG22 advises that *co-location results from a low concentration site (typically a background site) should not be used to derive a bias adjustment factor for survey results from high concentration sites (typically roadside sites) and vice versa.*

Whilst there are some arguments for us to use the local factor from our co-located study at East Grinstead, we feel that, given the proposed revocation of our AQMA, we should ensure a cautious approach by using the least favourable bias adjustment factor. If the data support revocation even with the least favourable factor, this indicates a robust and defensible decision to revoke.

NO₂ Fall-off with Distance from the Road

No diffusion tube NO₂ monitoring locations within Mid Sussex required distance correction during 2023.

QA/QC of Automatic Monitoring

The Local Site Operator (LSO) visits the site regularly (usually fortnightly) to undertake calibration/cleaning & filter changes.

The site is serviced by a contractor every 6 months

The data presented in this annual status report has been ratified and the data (present and historical) is available on the Sussex Air website at [Sussex-air :: Promoting better Air Quality in Sussex :: sussex-air.net :: Home](https://sussex-air.net)

PM₁₀ Monitoring Adjustment

The data is corrected by Bureau Veritas using a factor of 1.3 as there are no viable TEOM (tapered element oscillating microbalances) FDMS (filter dynamics measurement system) type units in the region to allow a VCM (volatile correction model) correction.

Automatic Monitoring Annualisation

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

NO₂ Fall-off with Distance from the Road

No automatic NO₂ monitoring locations within Mid Sussex required distance correction during 2023.

Appendix D: Maps of Monitoring Locations and AQMAs

Figure D.1 – Map of Non-Automatic Monitoring Sites

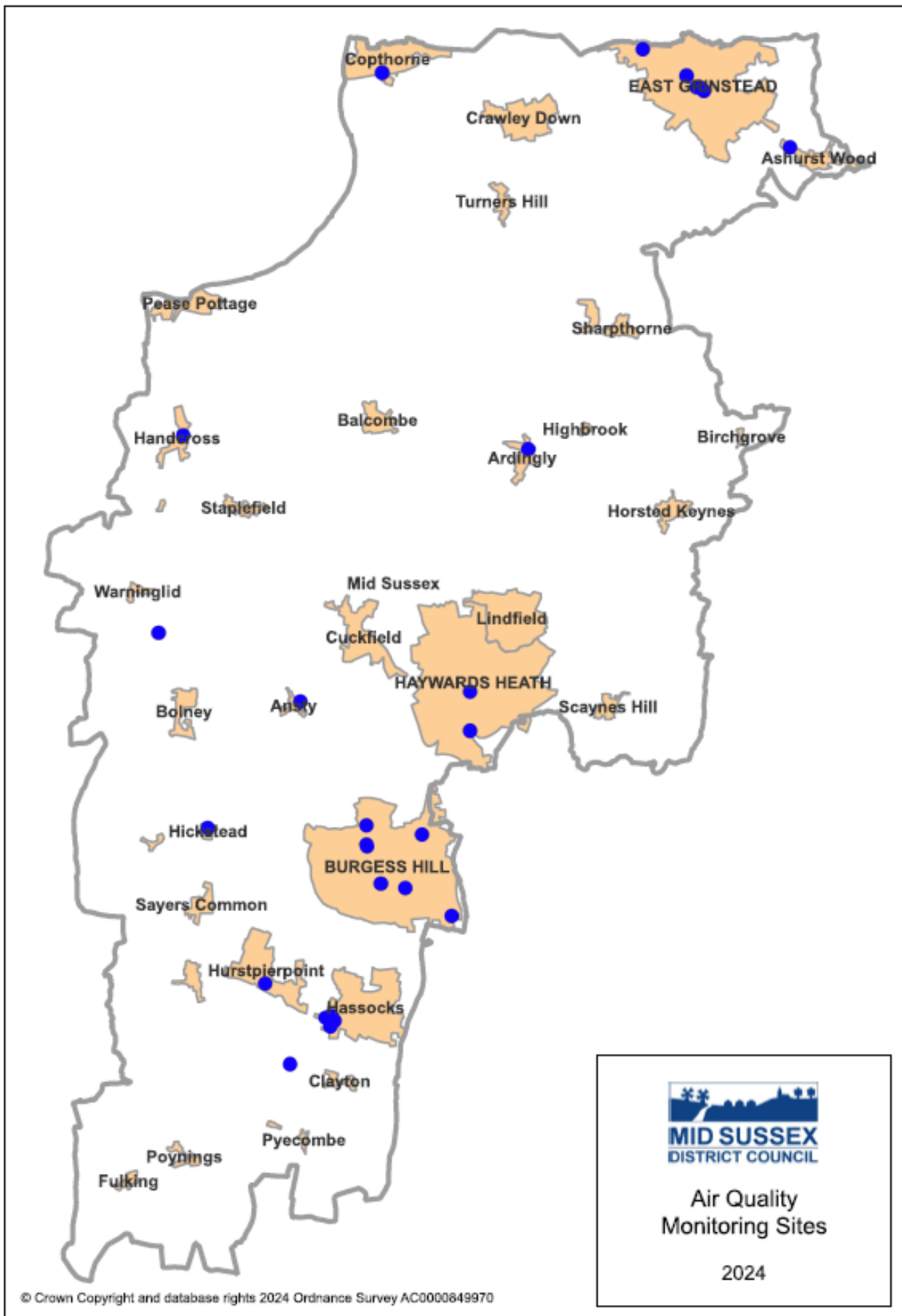


Figure D.2 – MSAQ1 South Road Haywards Heath

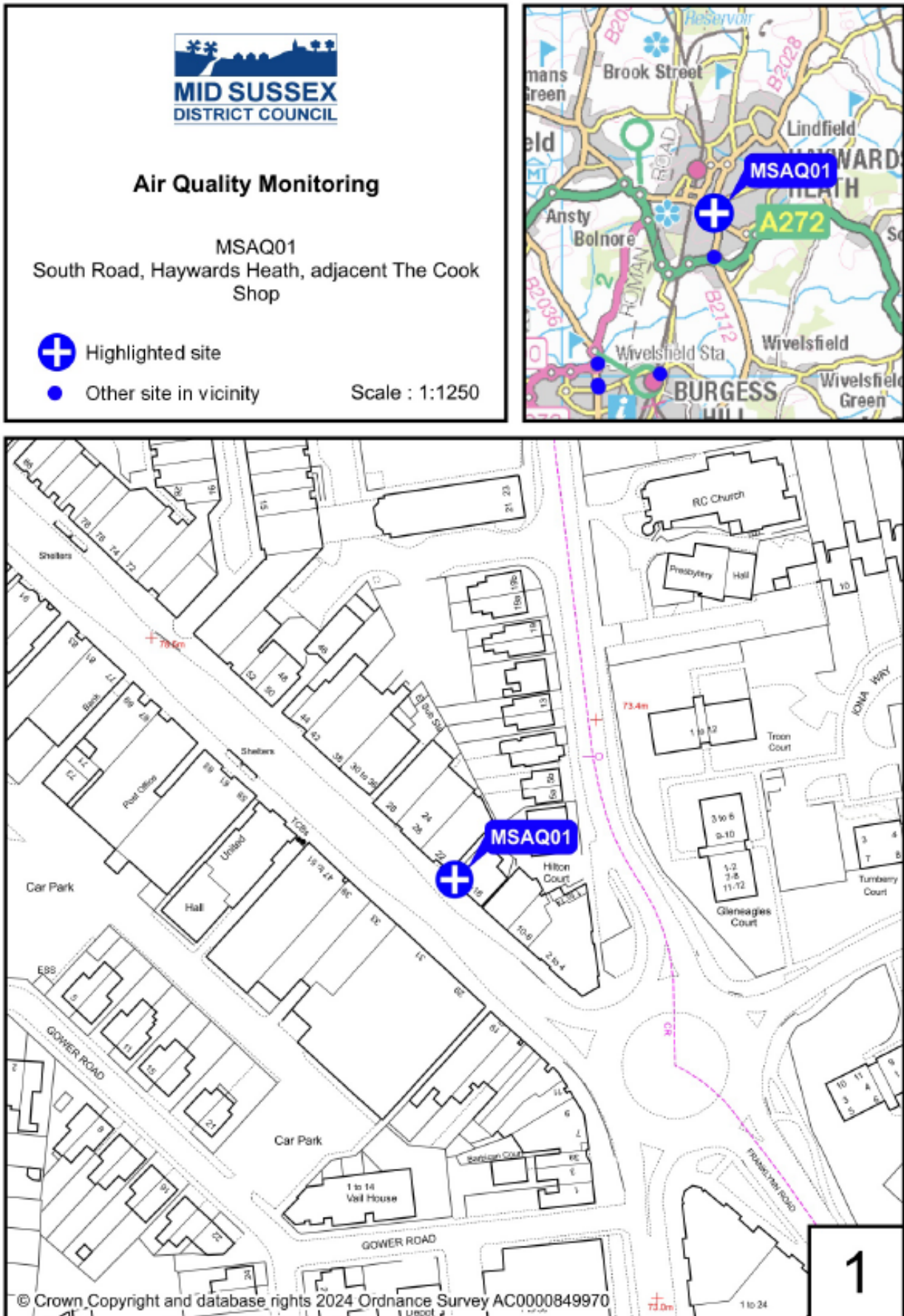


Figure D.3 – MSAQ3 London Road, East Grinstead

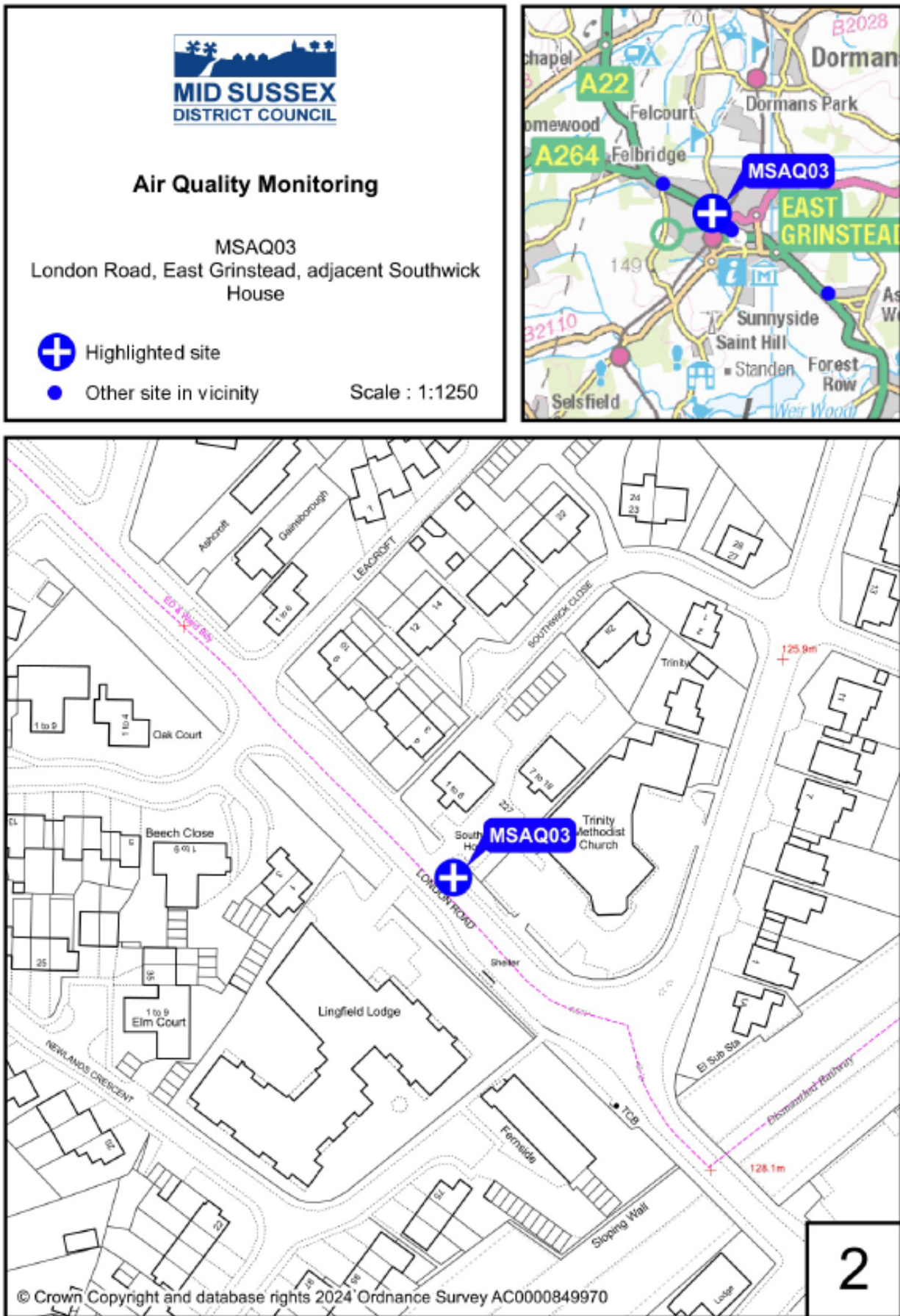


Figure D.4 – MSAQ5 Lewes Road, East Grinstead

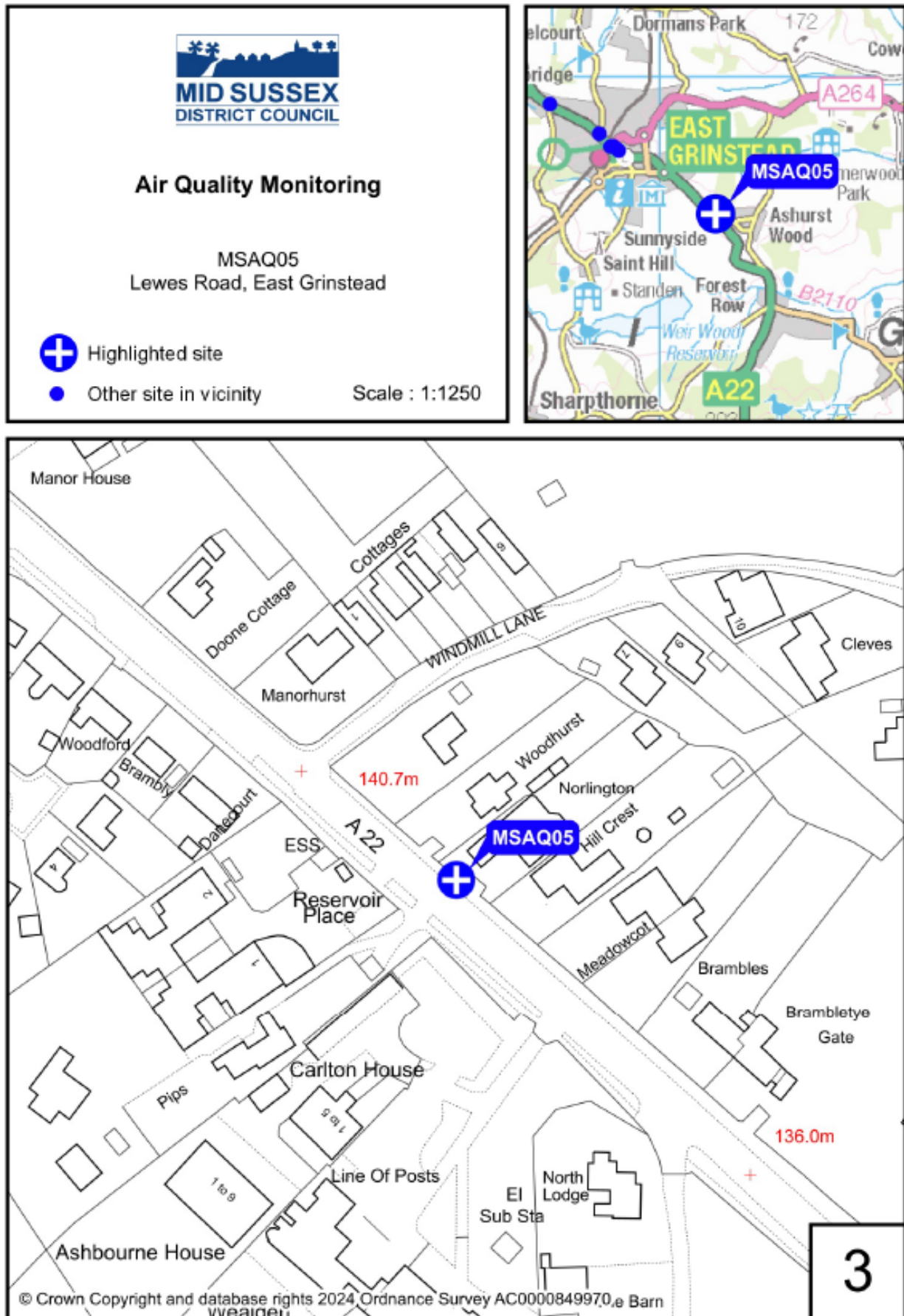


Figure D.5 – MSAQ9 Water Tower, Colwood Lane, Warninglid

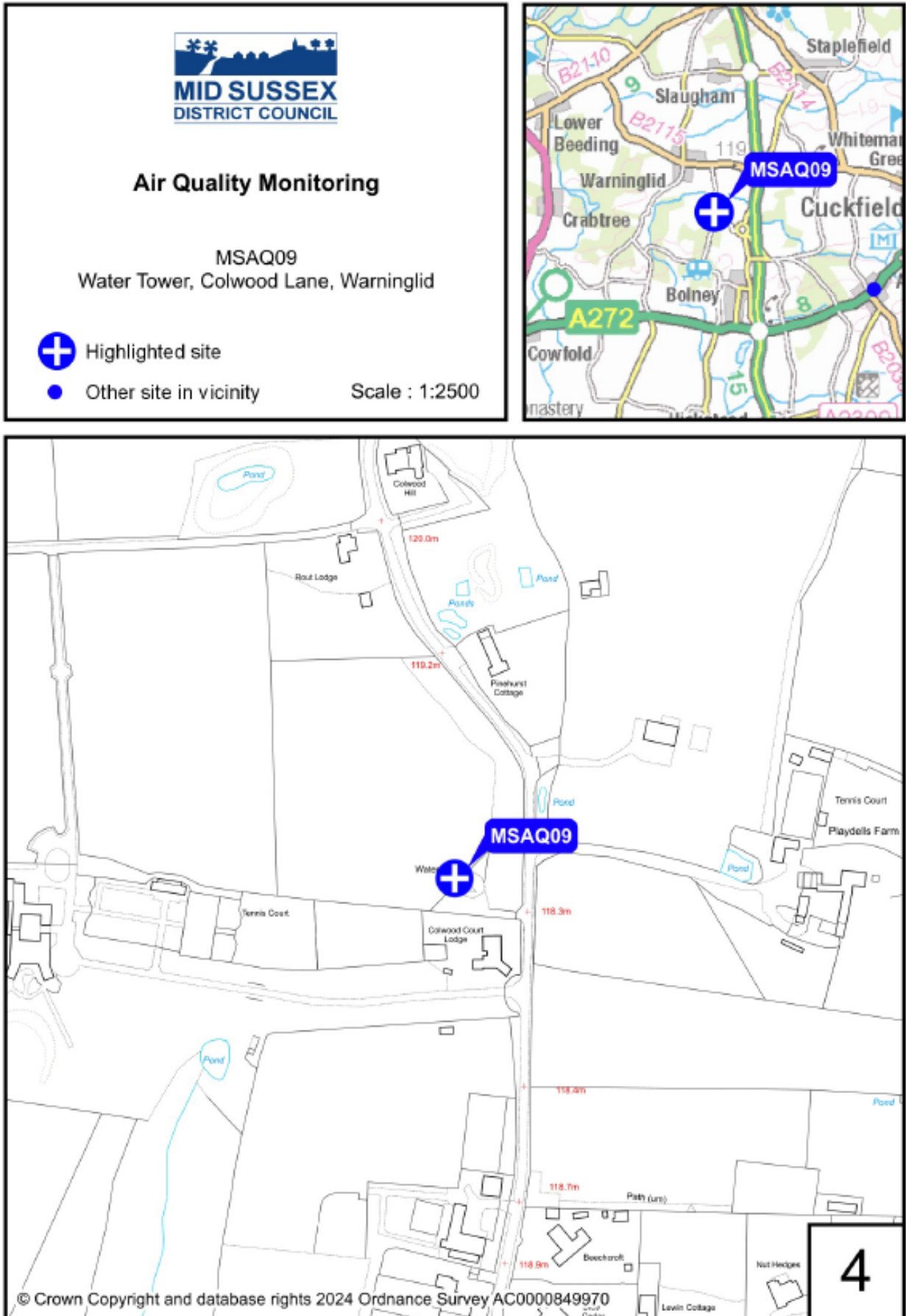


Figure D.6 – MSAQ10 Stonepound Crossroads, Keymer Road, Hassocks

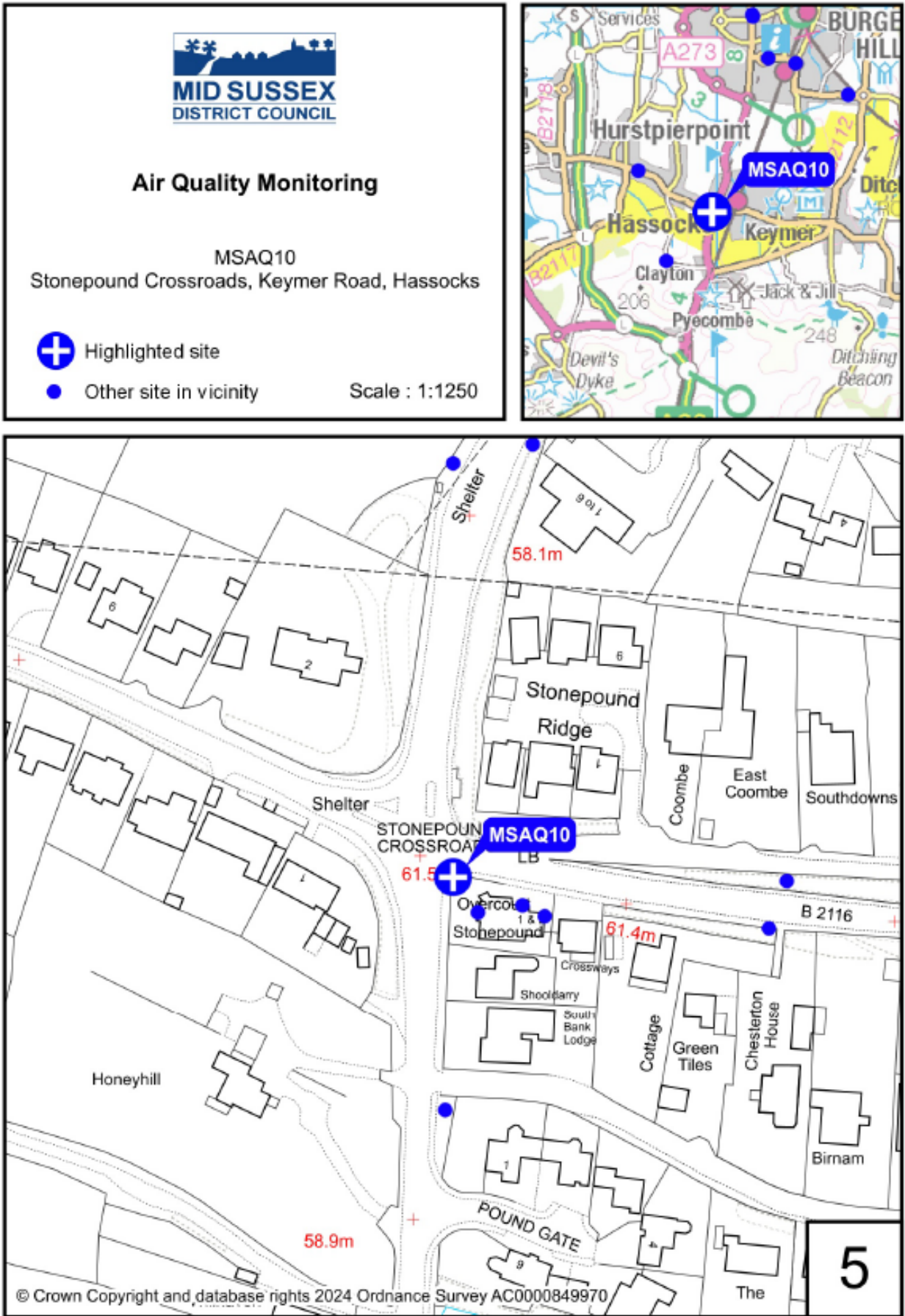


Figure D.7 – MSAQ11 Northern façade Overcourt, Keymer Road, Hassocks

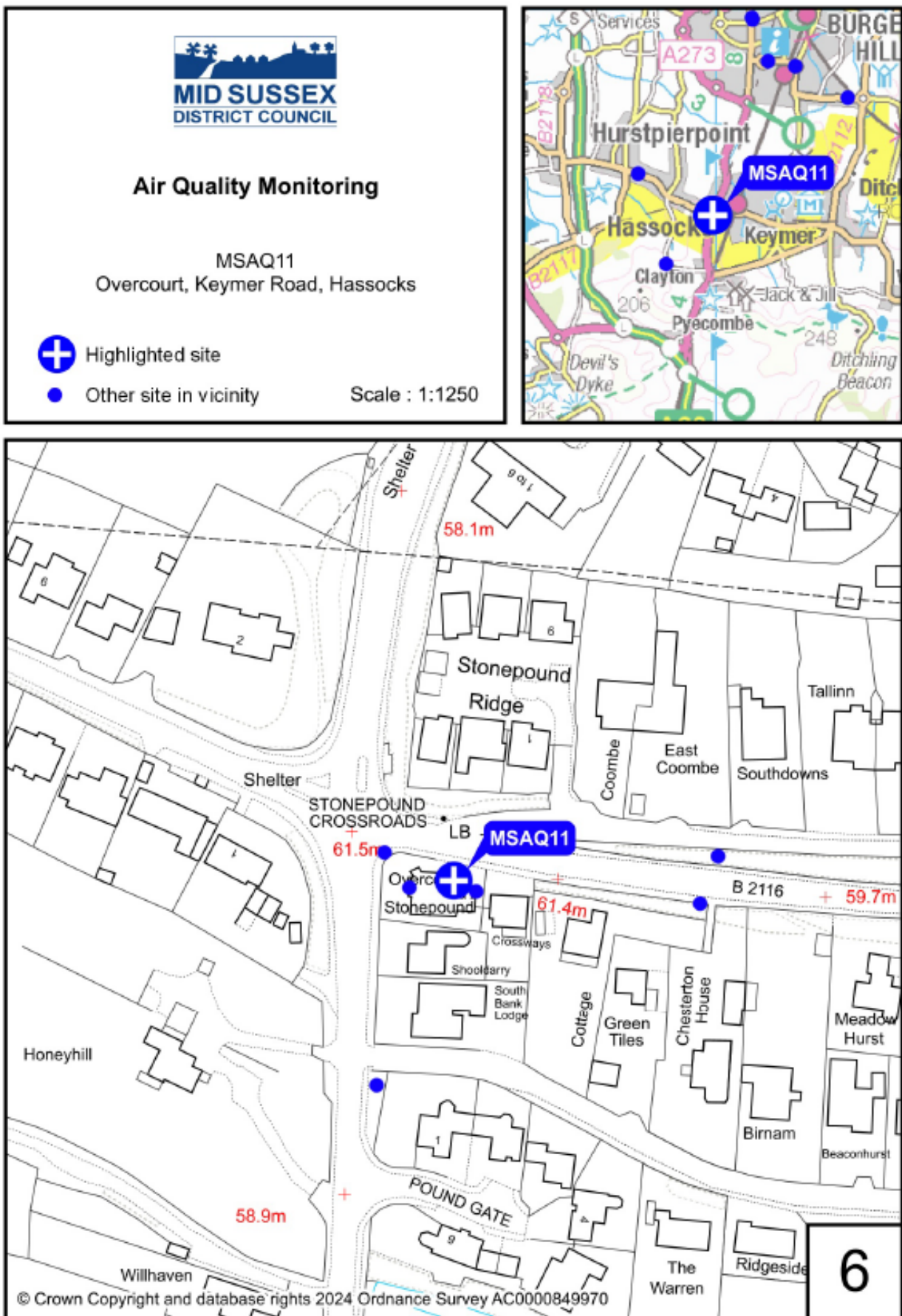


Figure D.8 – MSAQ12 Telegraph Pole, Keymer Road, Hassocks

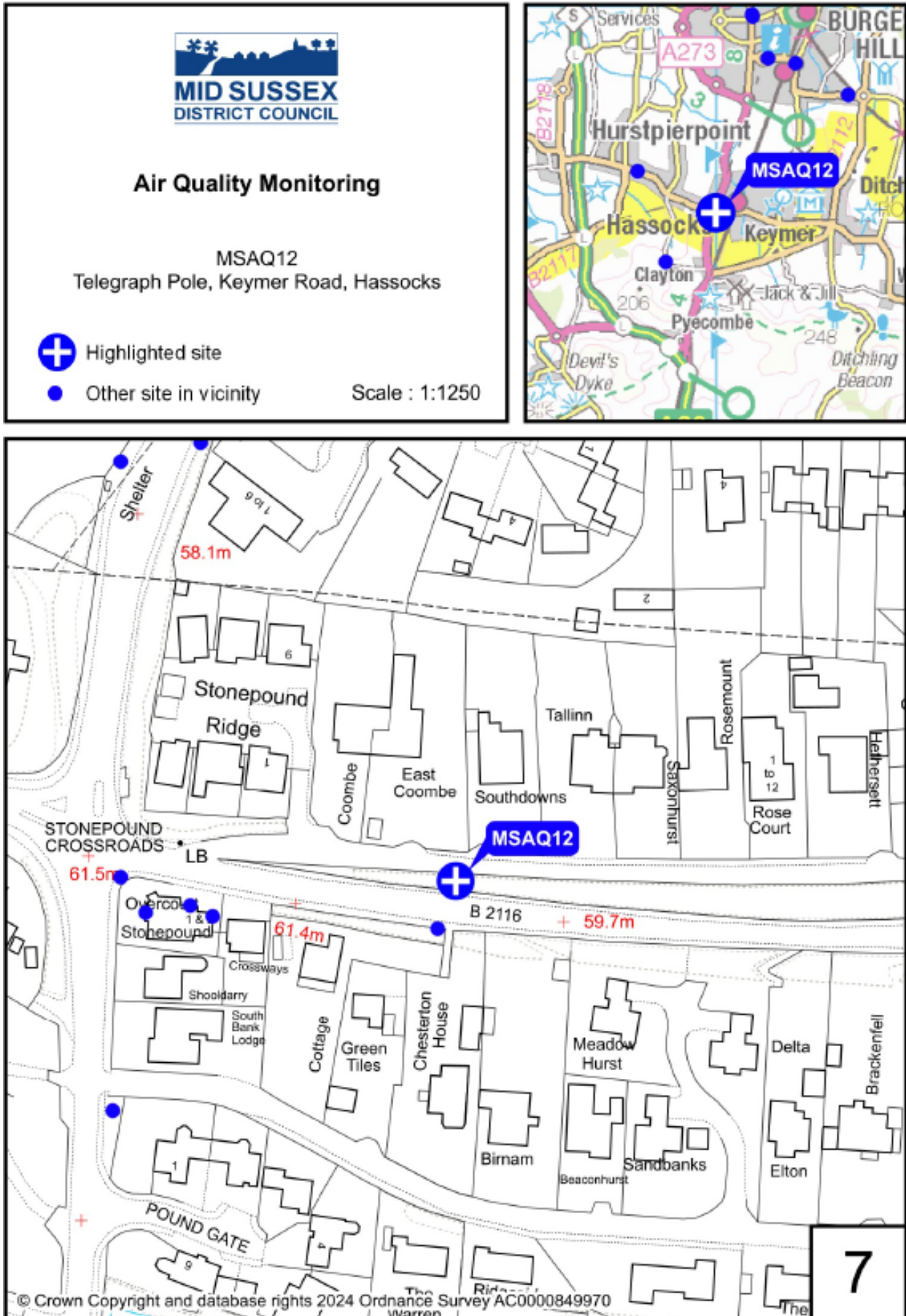


Figure D.9 – MSAQ13 Lamp Post, Keymer Road, Hassocks

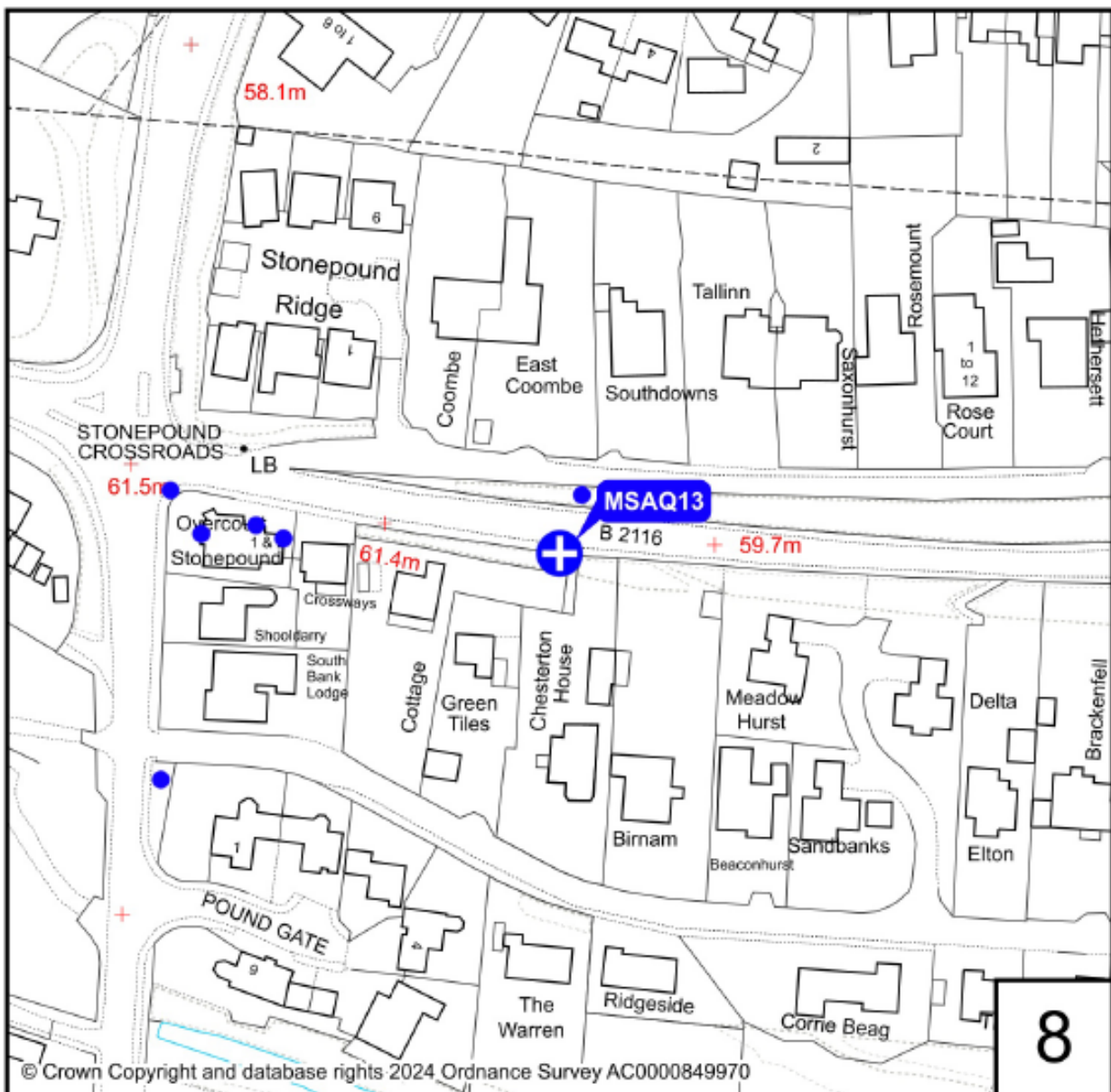
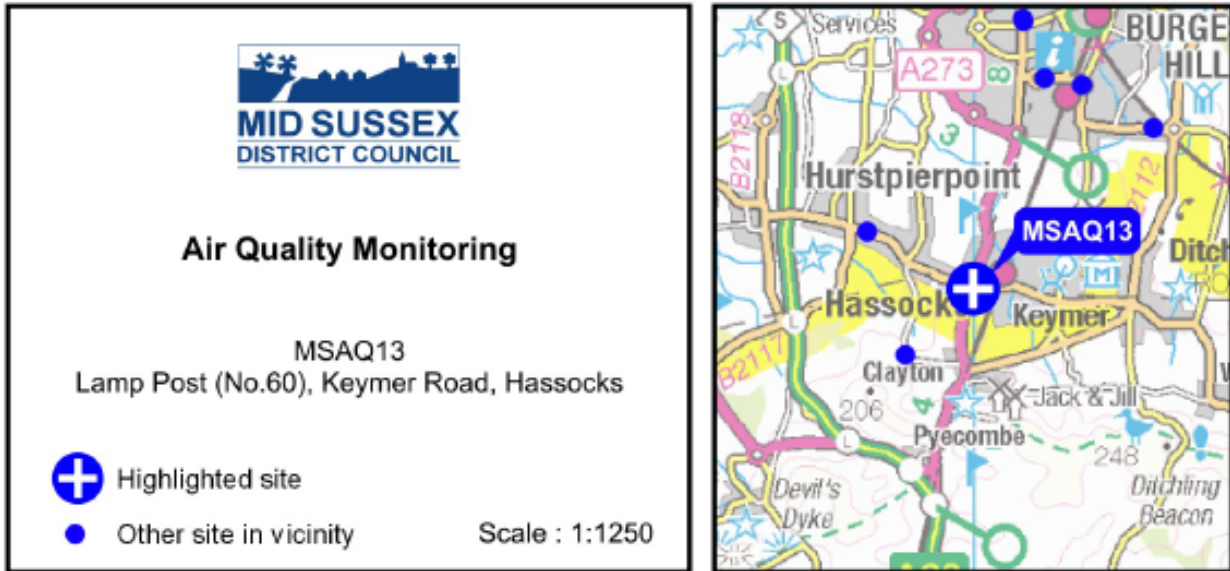


Figure D.10 – MSAQ14 Bus Stop, London Road, Hassocks

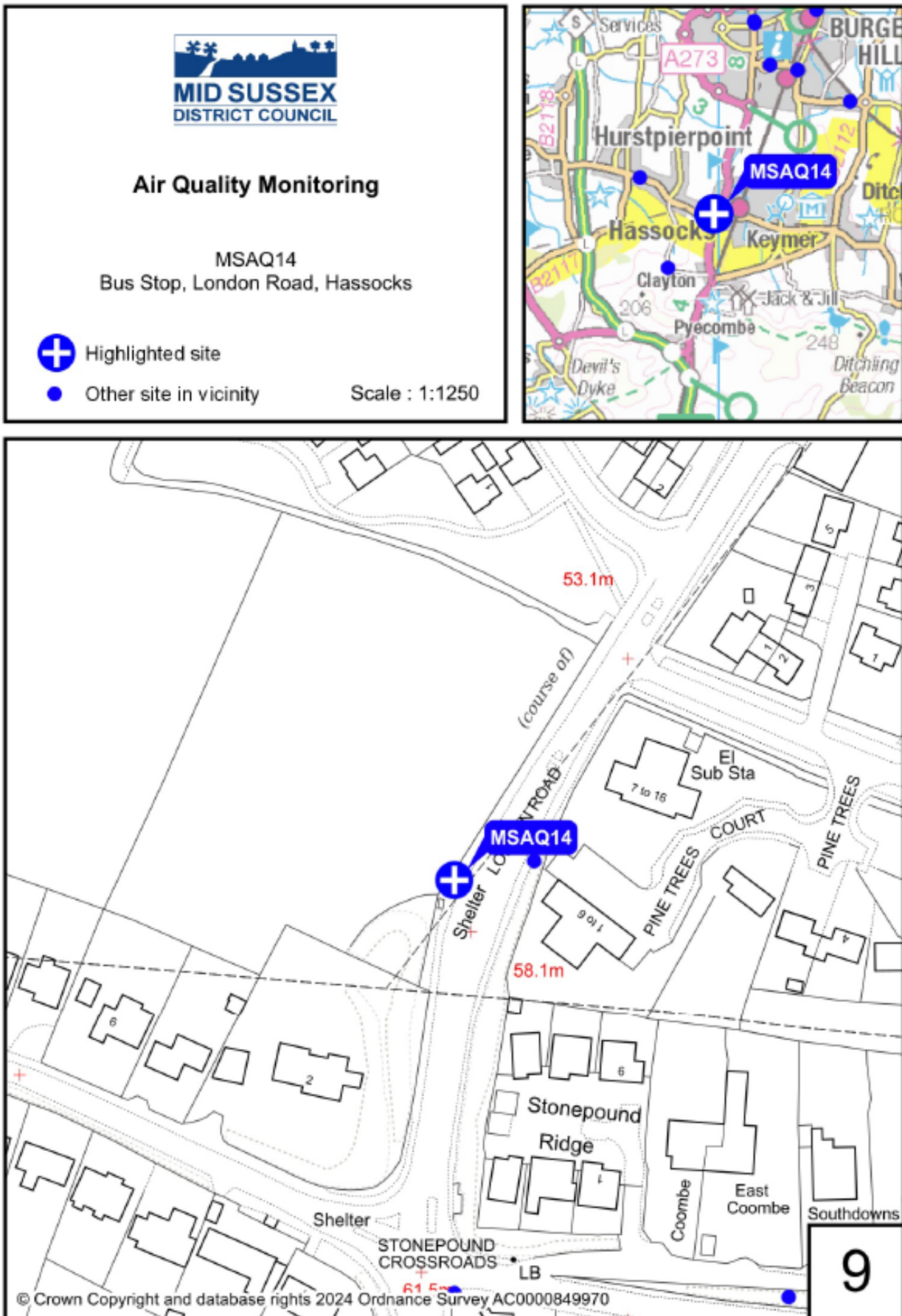


Figure D.11 – MSAQ15 Traffic light sign, London Road, Hassocks

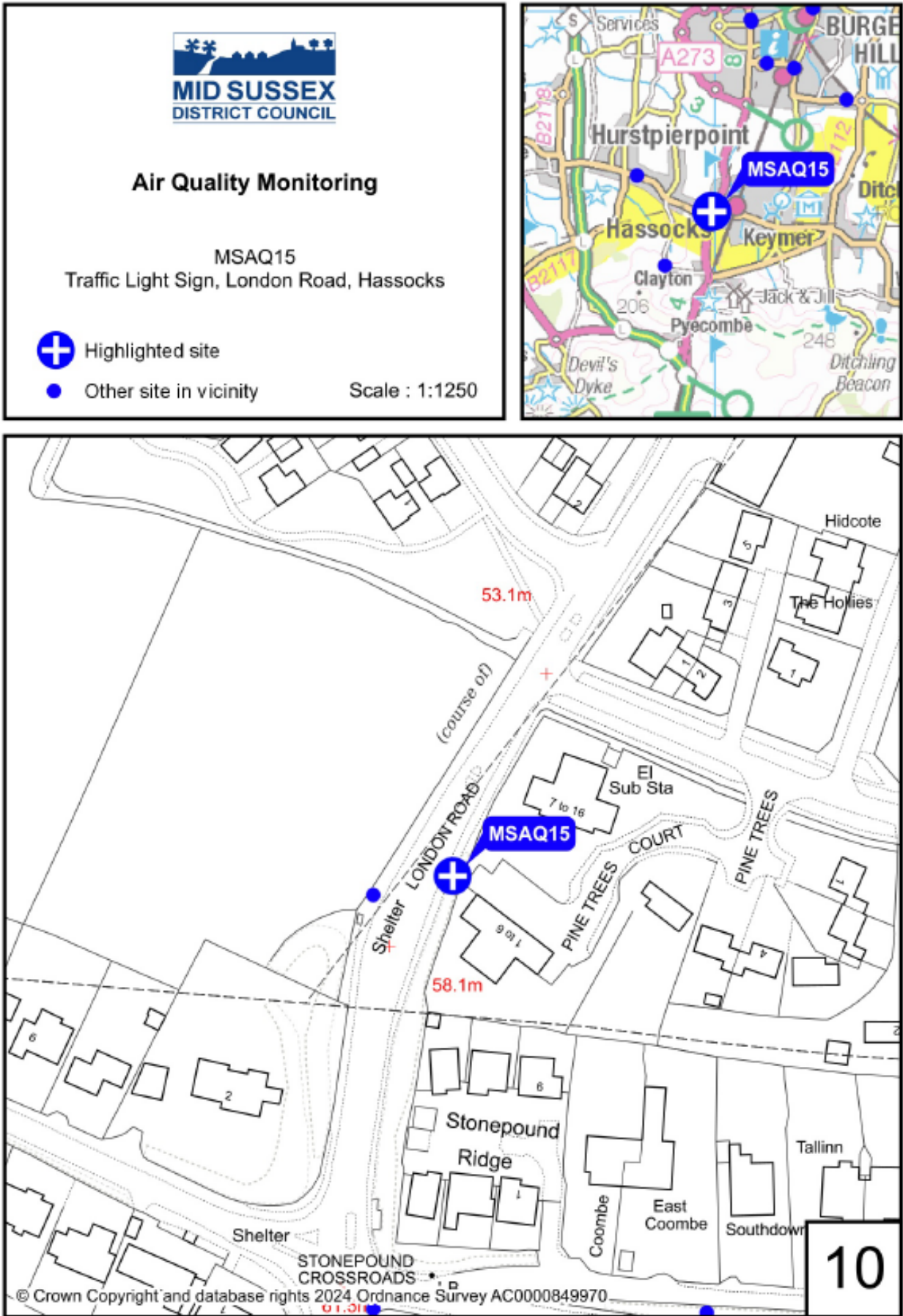


Figure D.12 – MSAQ17 Lamp Post, Brighton Road, Hassocks

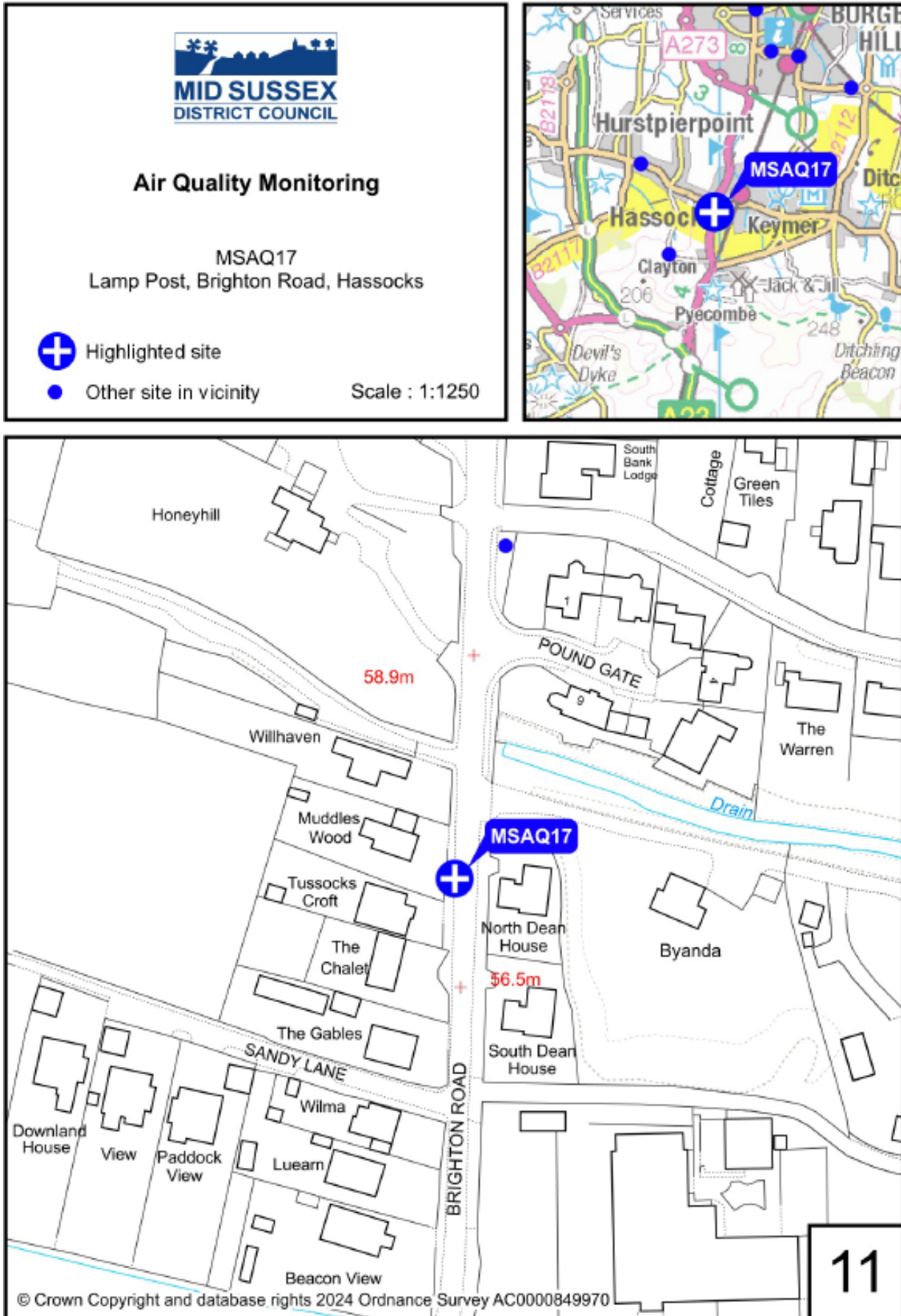


Figure D.13 – MSAQ18 Bus Stop, Brighton Road, Hassocks

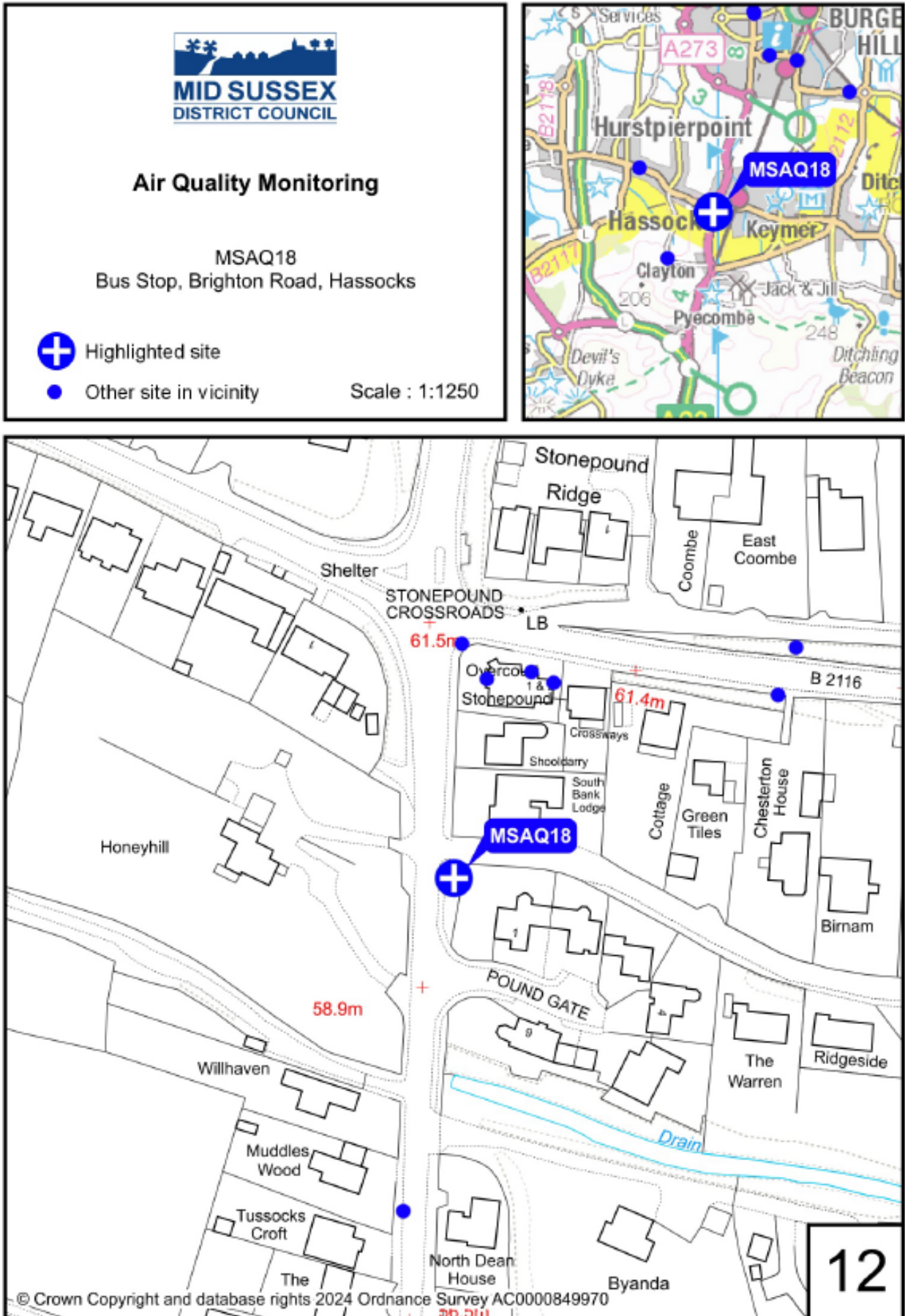


Figure D.14 – MSAQ19 Lamp Post, Hurst Road, Hassocks

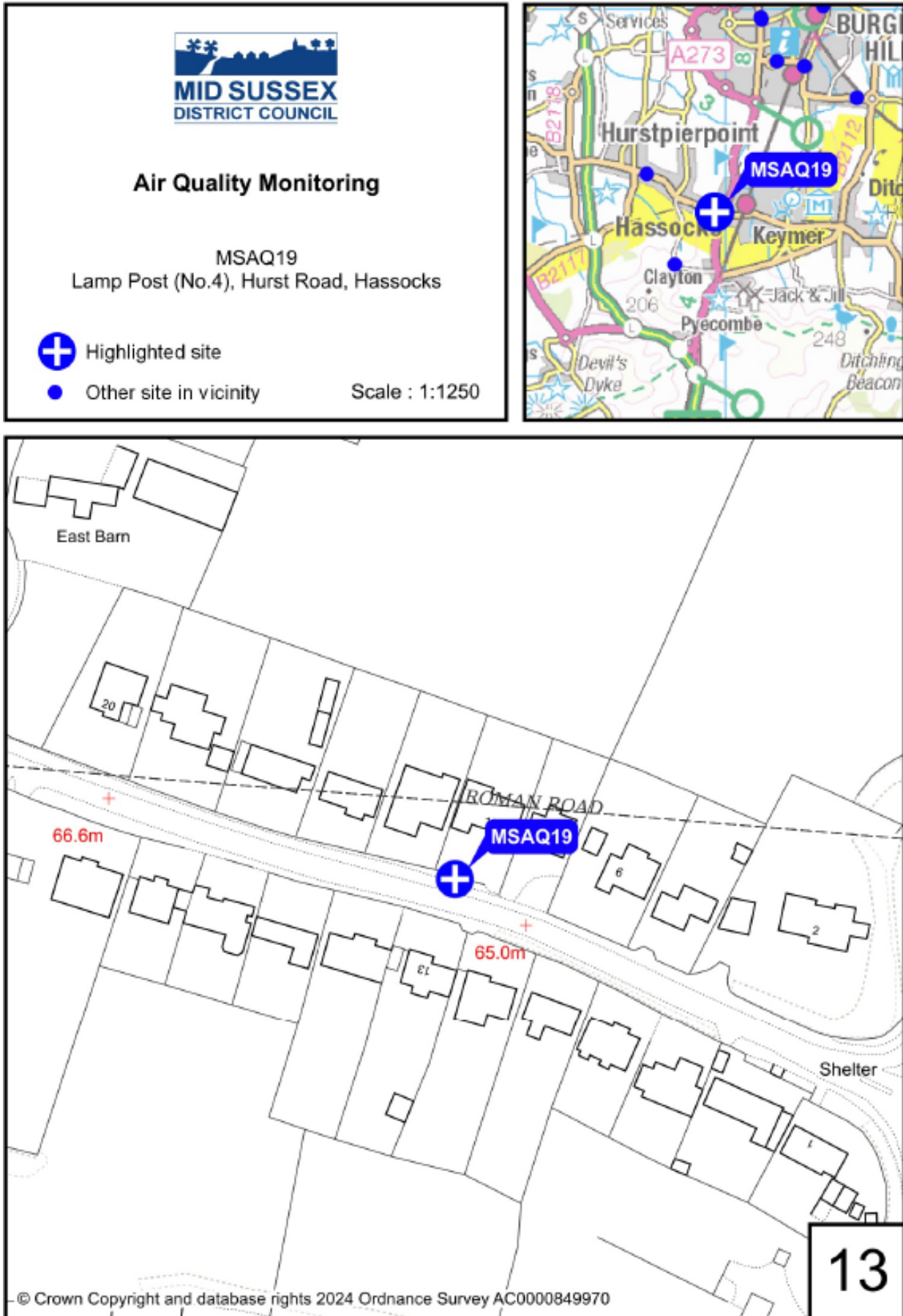


Figure D.15 – MSAQ21 Parking Sign, London Road, Burgess Hill

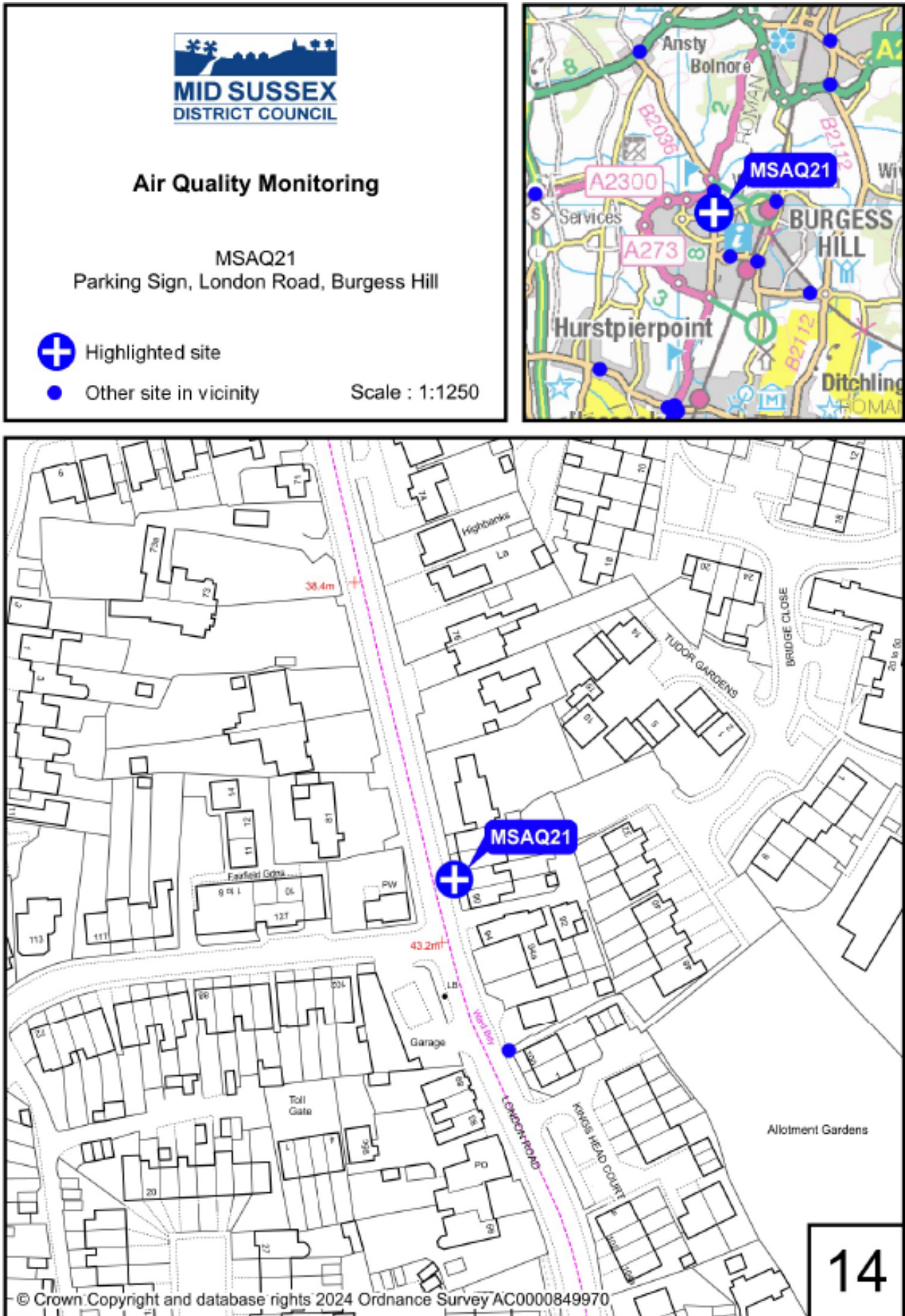


Figure D.16 – MSAQ22 Pedestrian crossing, Leylands Road, Burgess Hill

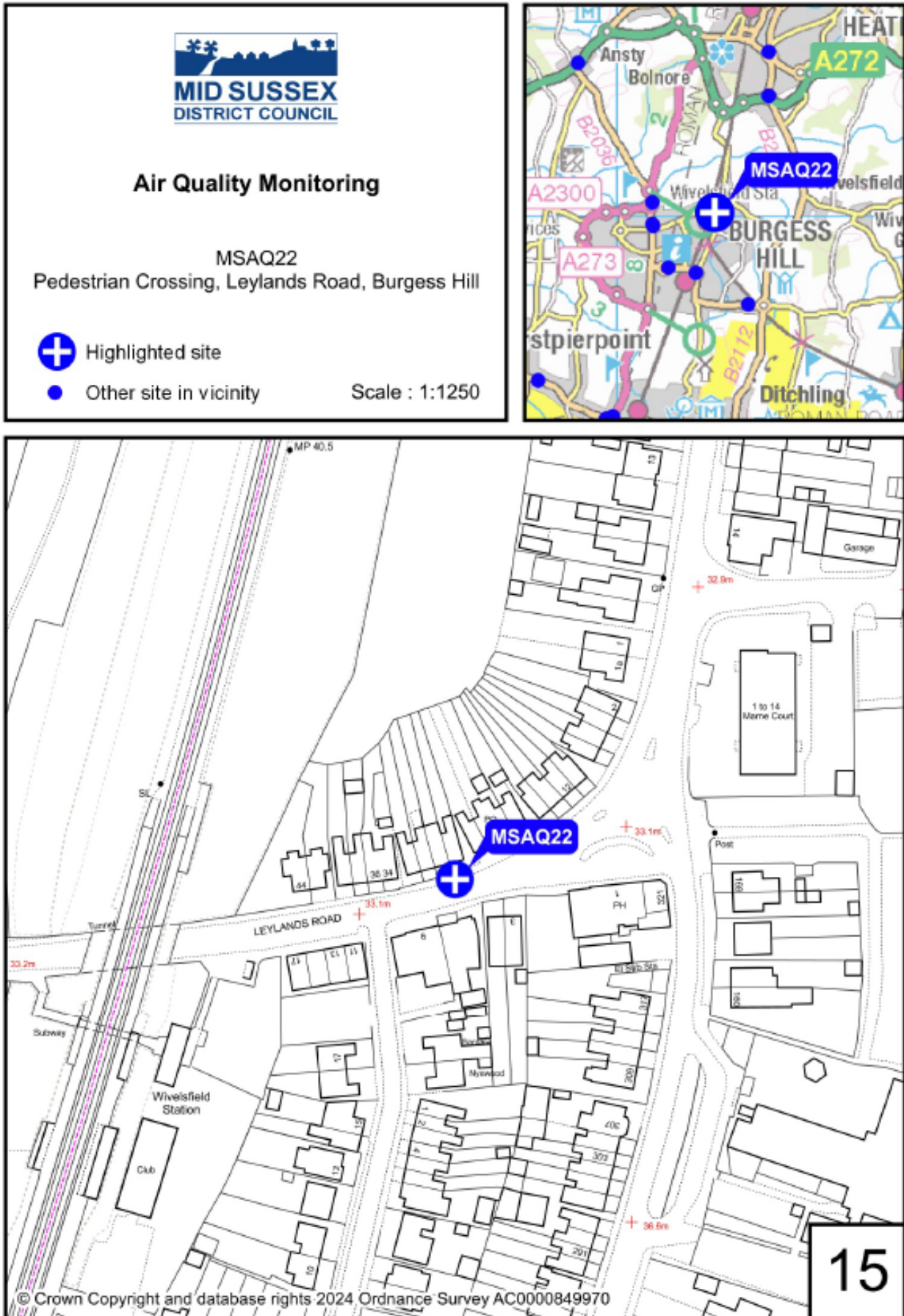


Figure D.17 – MSAQ23 Eastern Facade, Overcourt, Keymer Road, Hassocks

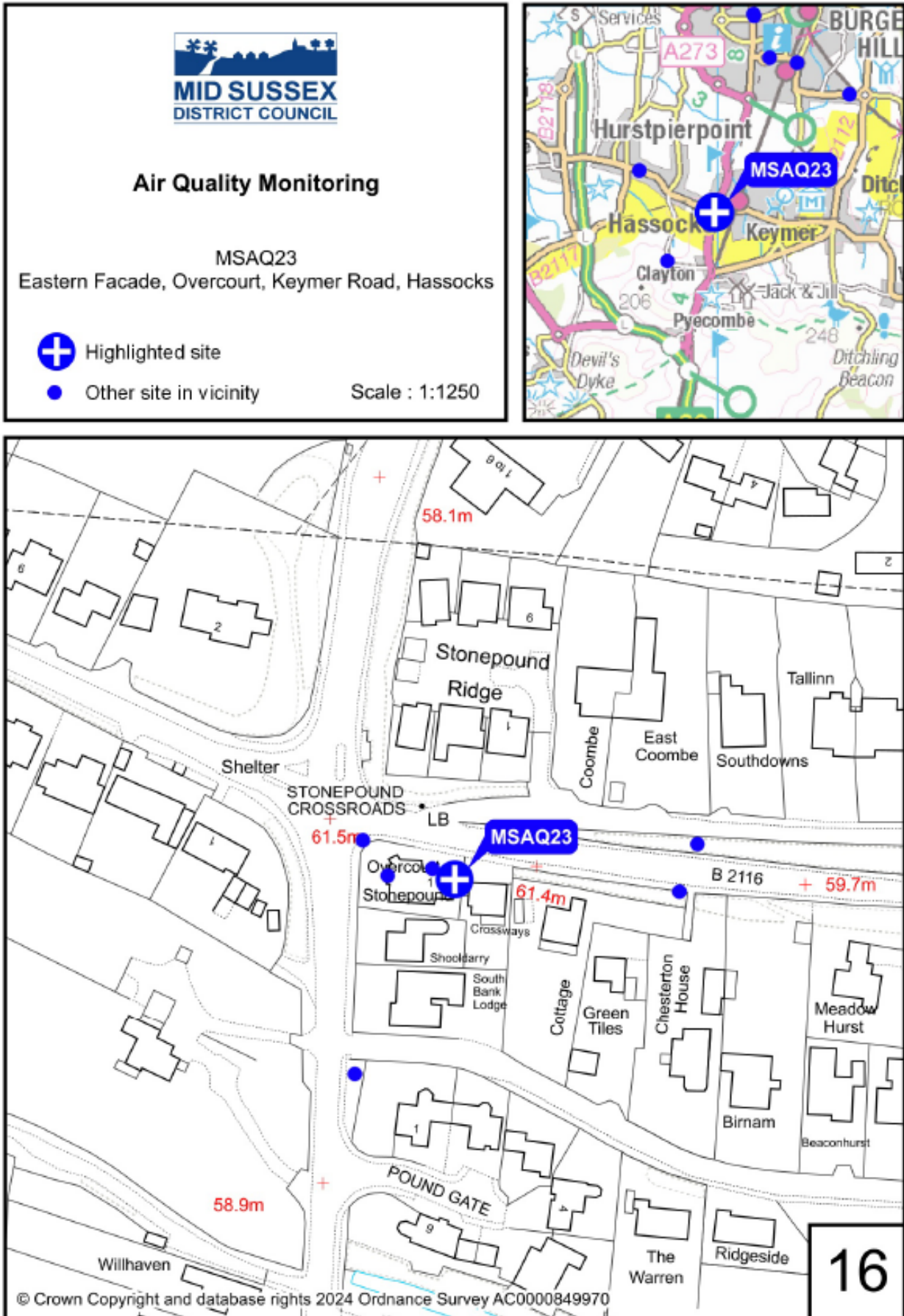


Figure D.18 – MSAQ24 Western Facade, Overcourt, Keymer Road, Hassocks

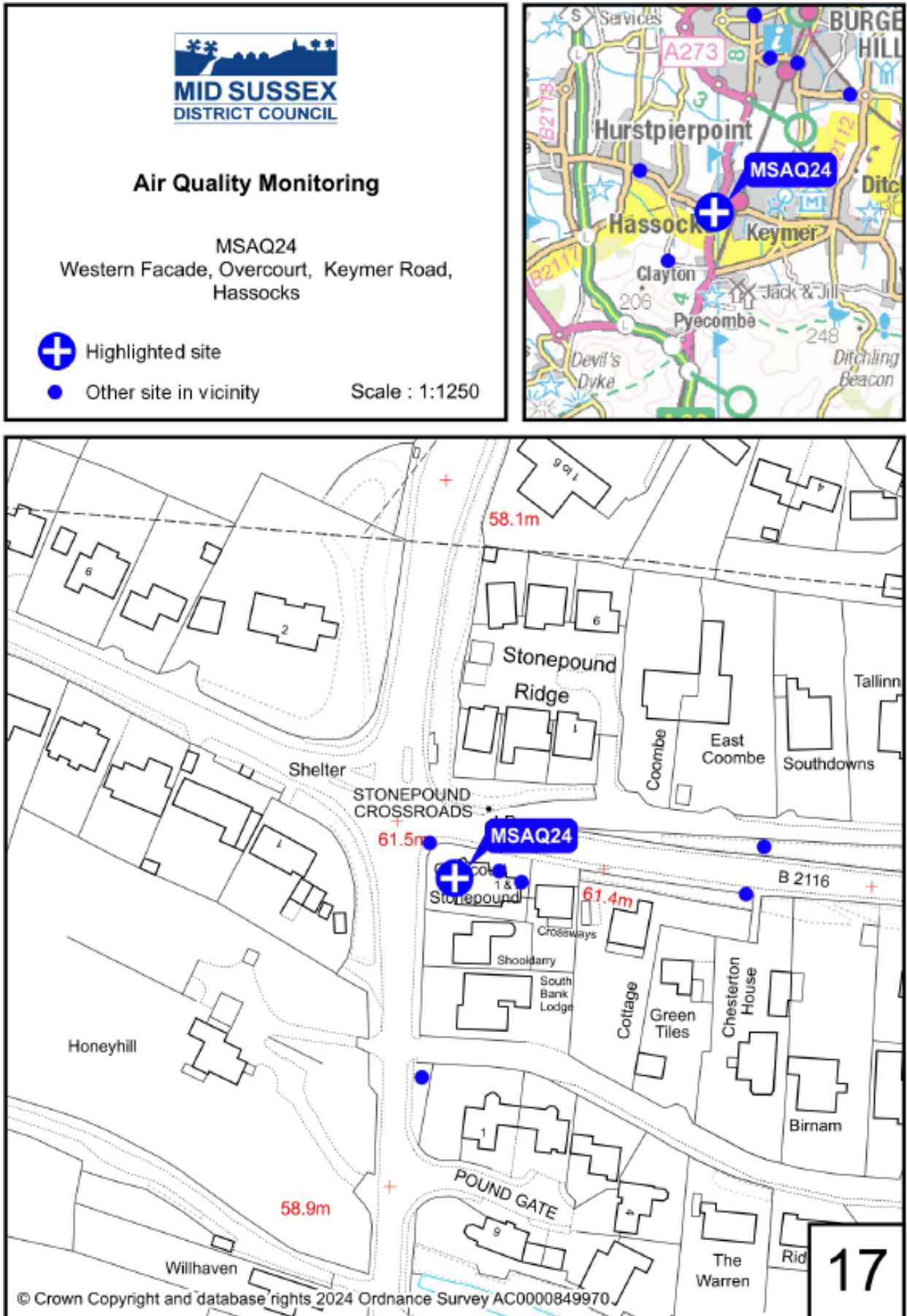


Figure D.19 – MSAQ25 Erica Way, Copthorne

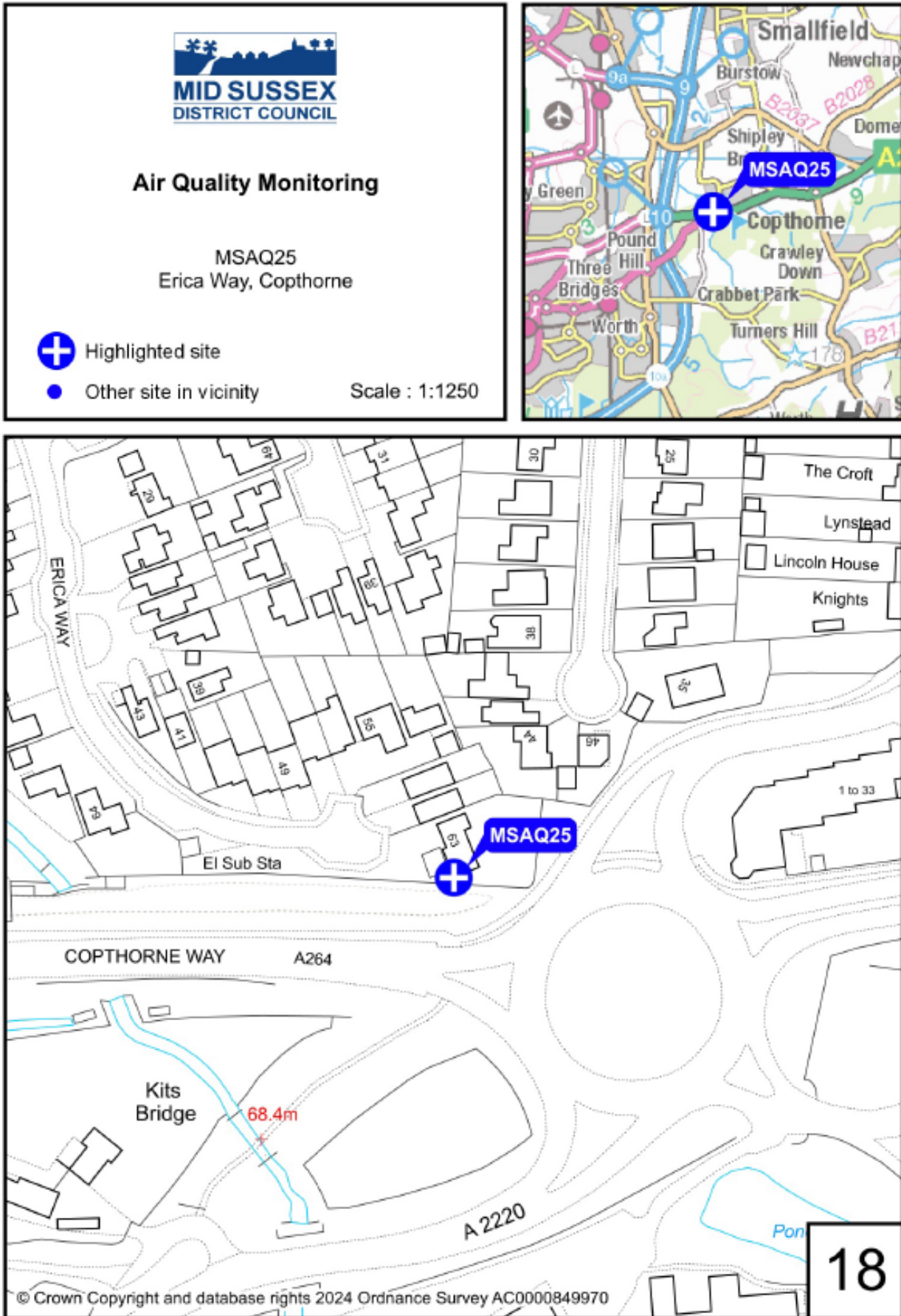


Figure D.20 – MSAQ26 Lamp Post, High Street, Hurstpierpoint

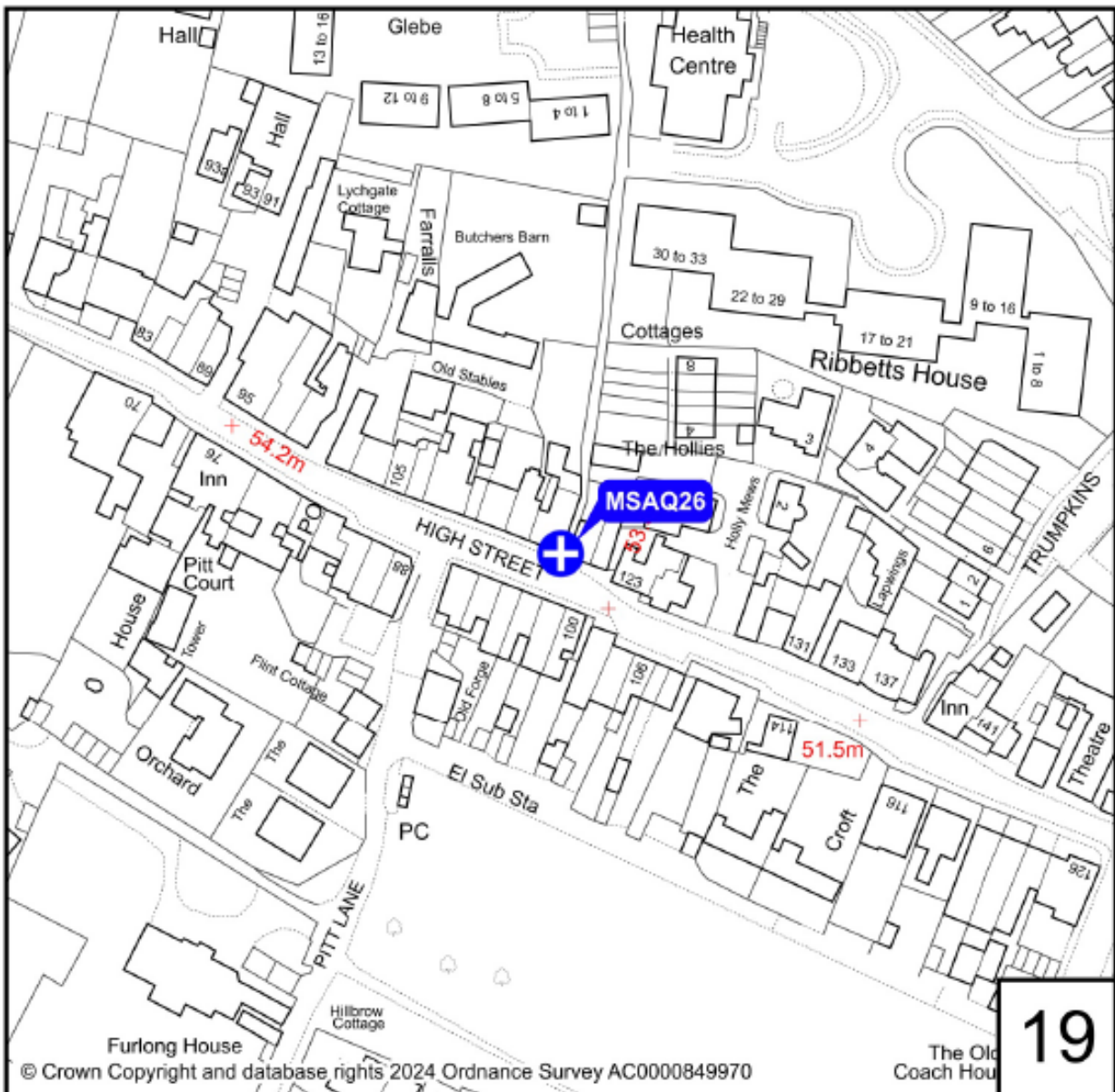
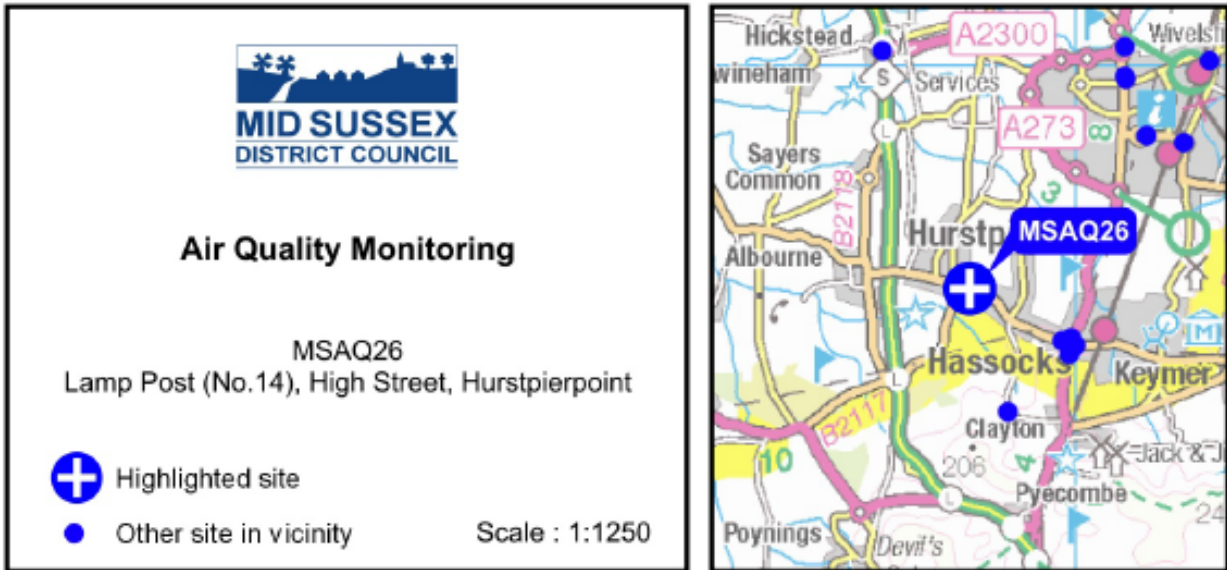


Figure D.21 – MSAQ27 Telegraph pole, London Road, Hickstead

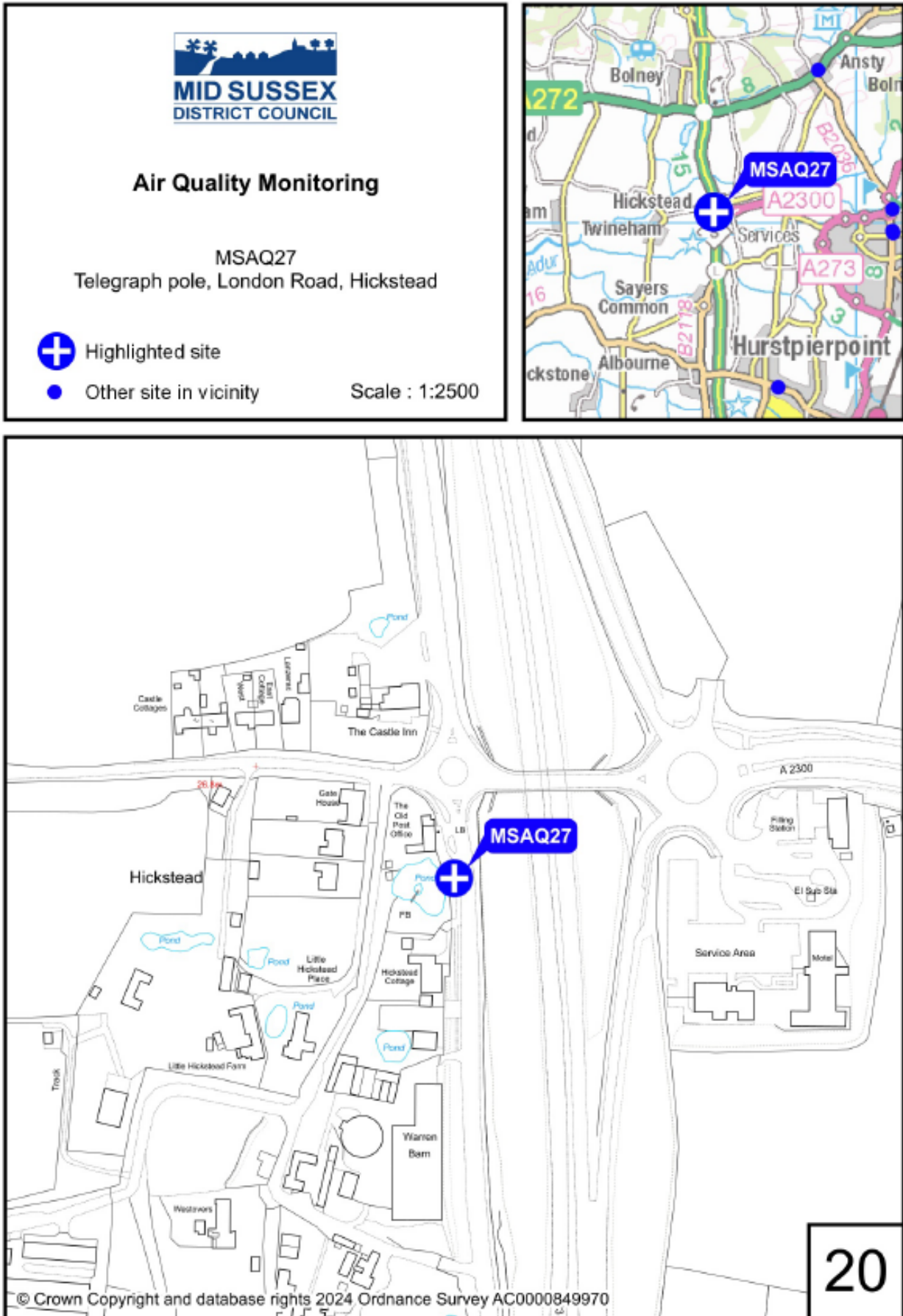


Figure D.22 – MSAQ28 Lamp Post, Rocky Lane, Haywards Heath

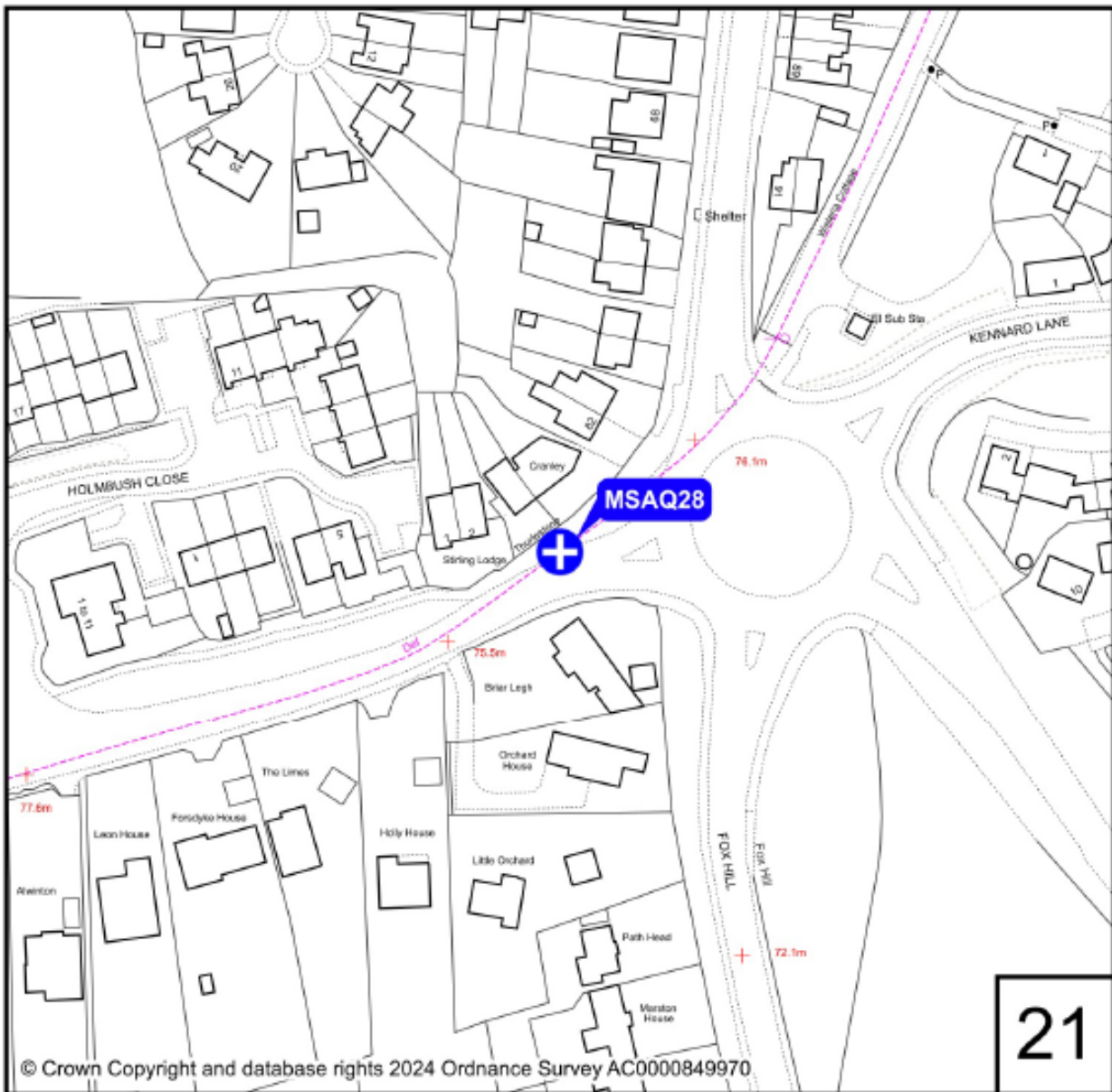
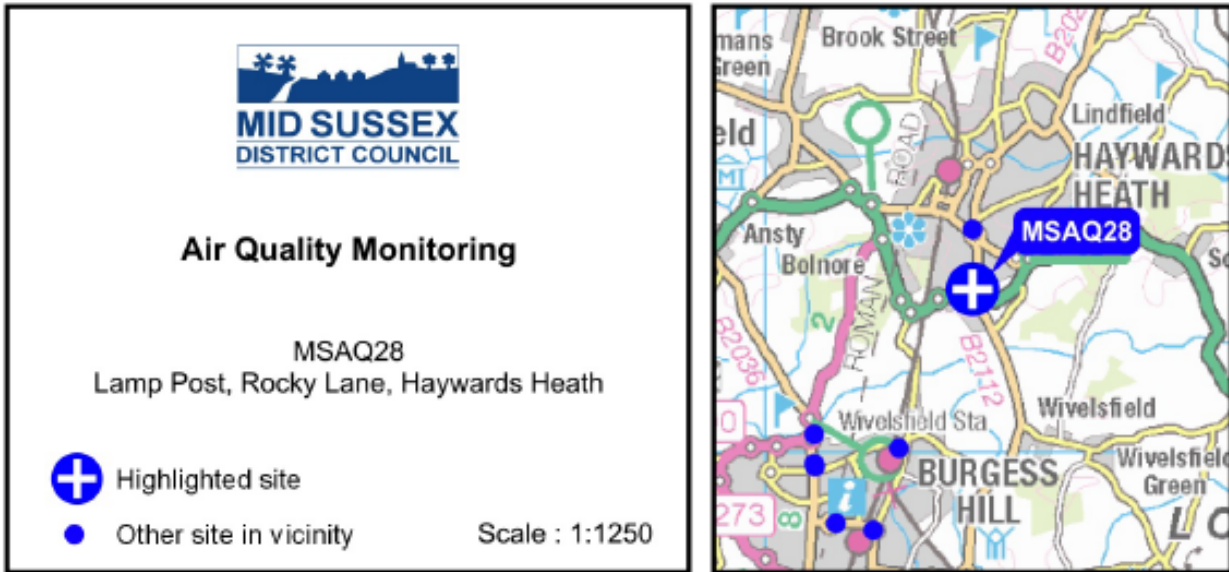


Figure D.23 – MSAQ29 Lamp Post adjacent 184 London Road, East Grinstead

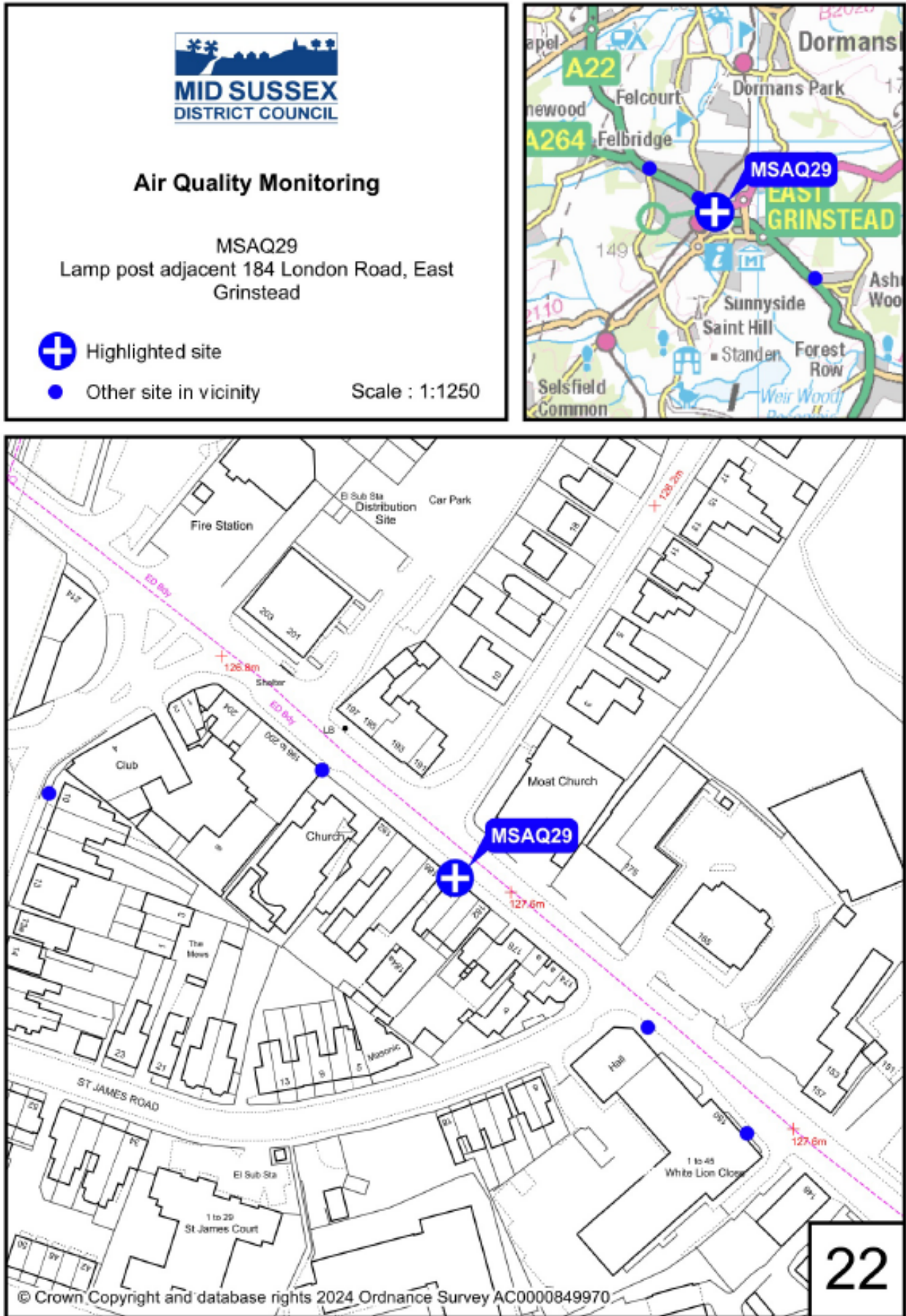


Figure D.24 – MSAQ32 Lamp Post adjacent 17 Woodcroft, Burgess Hill

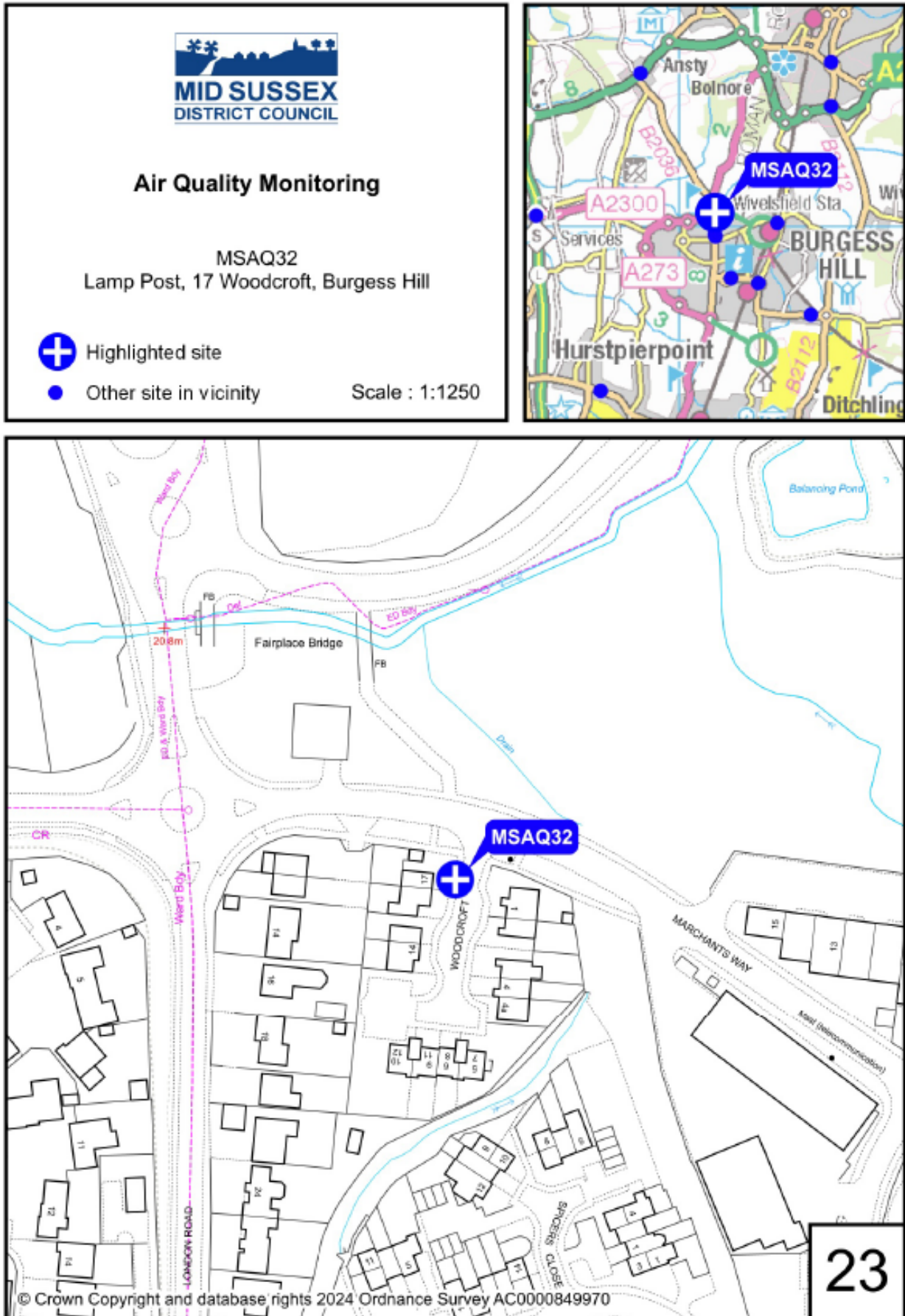


Figure D.25 – MSAQ34 Lamp Post (No 12) 11 Queen Elizabeth Avenue, Burgess Hill

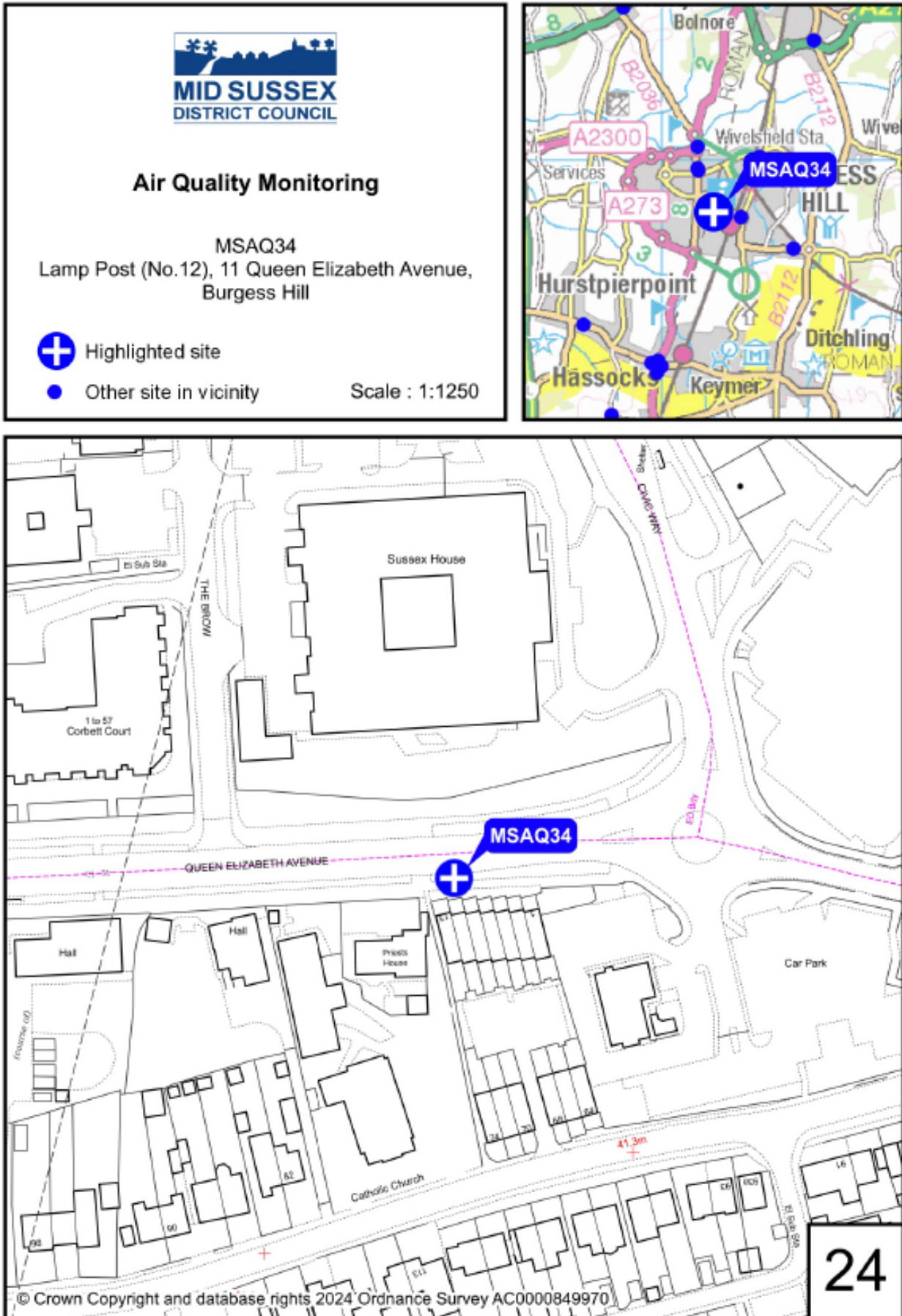


Figure D.26 – MSAQ35 New Way Lane, Hurstpierpoint

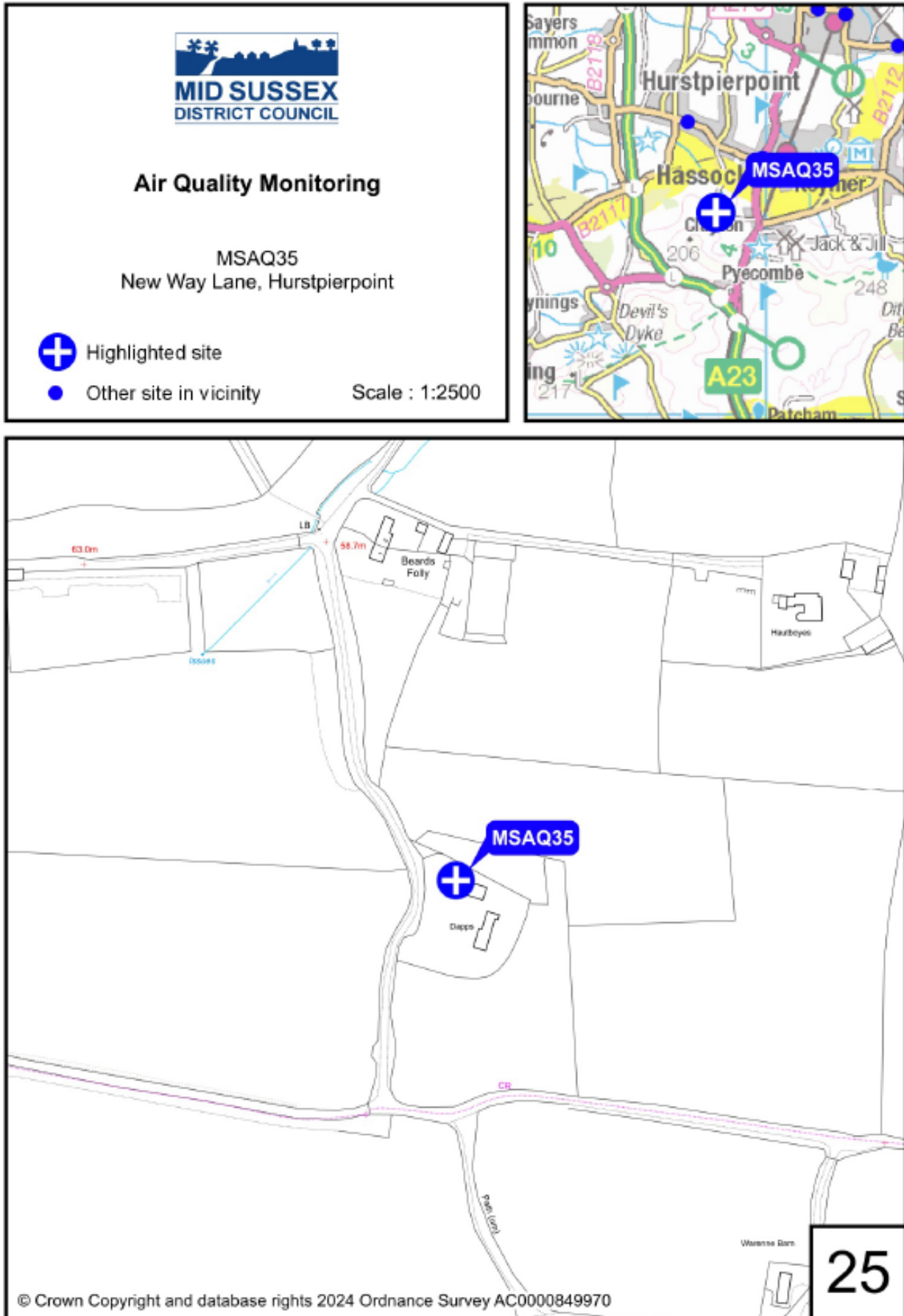


Figure D.27 – MSAQ36 Lamp Post outside Bridgeway, London Road, East Grinstead

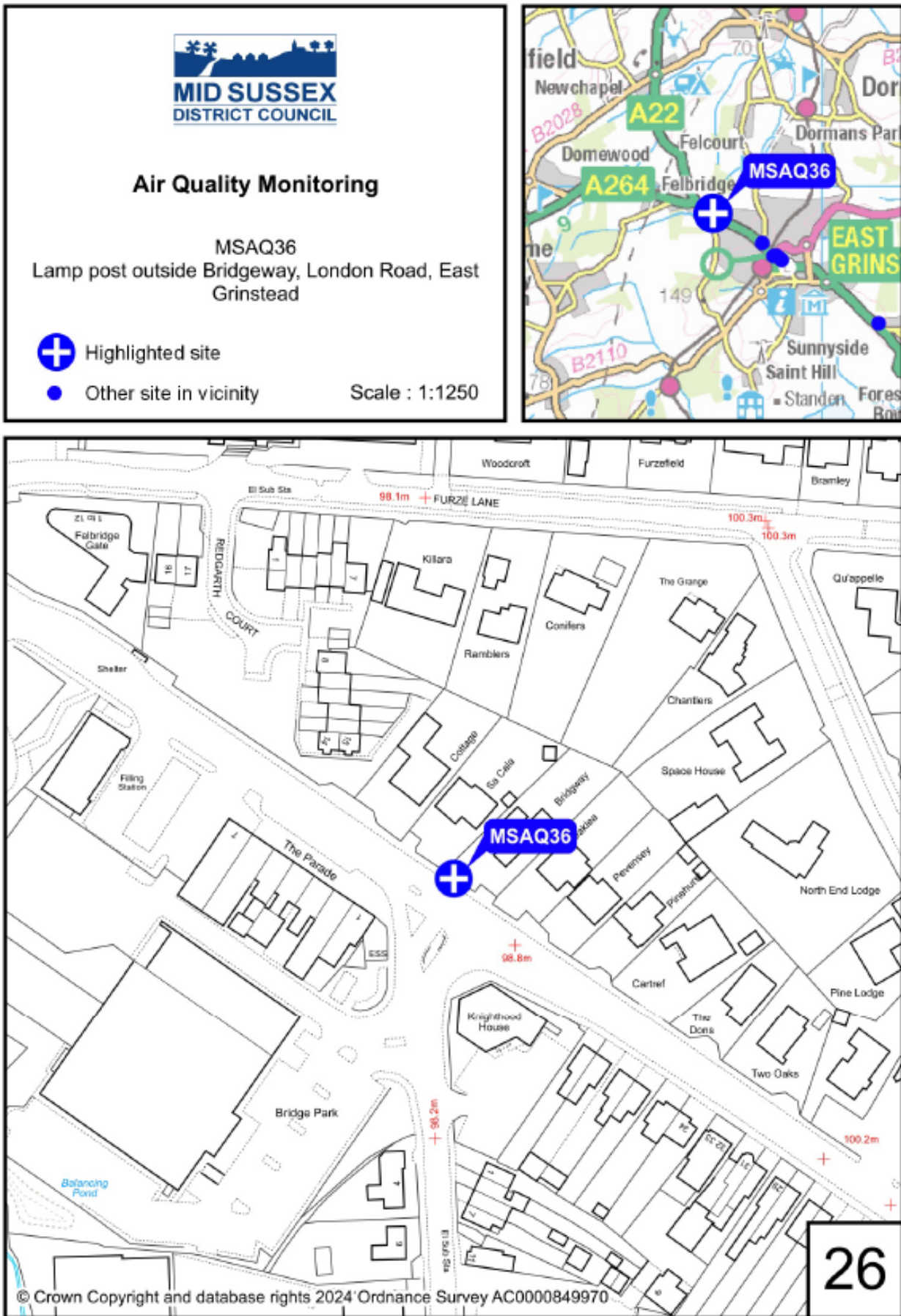


Figure D.28 – MSAQ37 Lamp Post adjacent 10 Station Road, East Grinstead

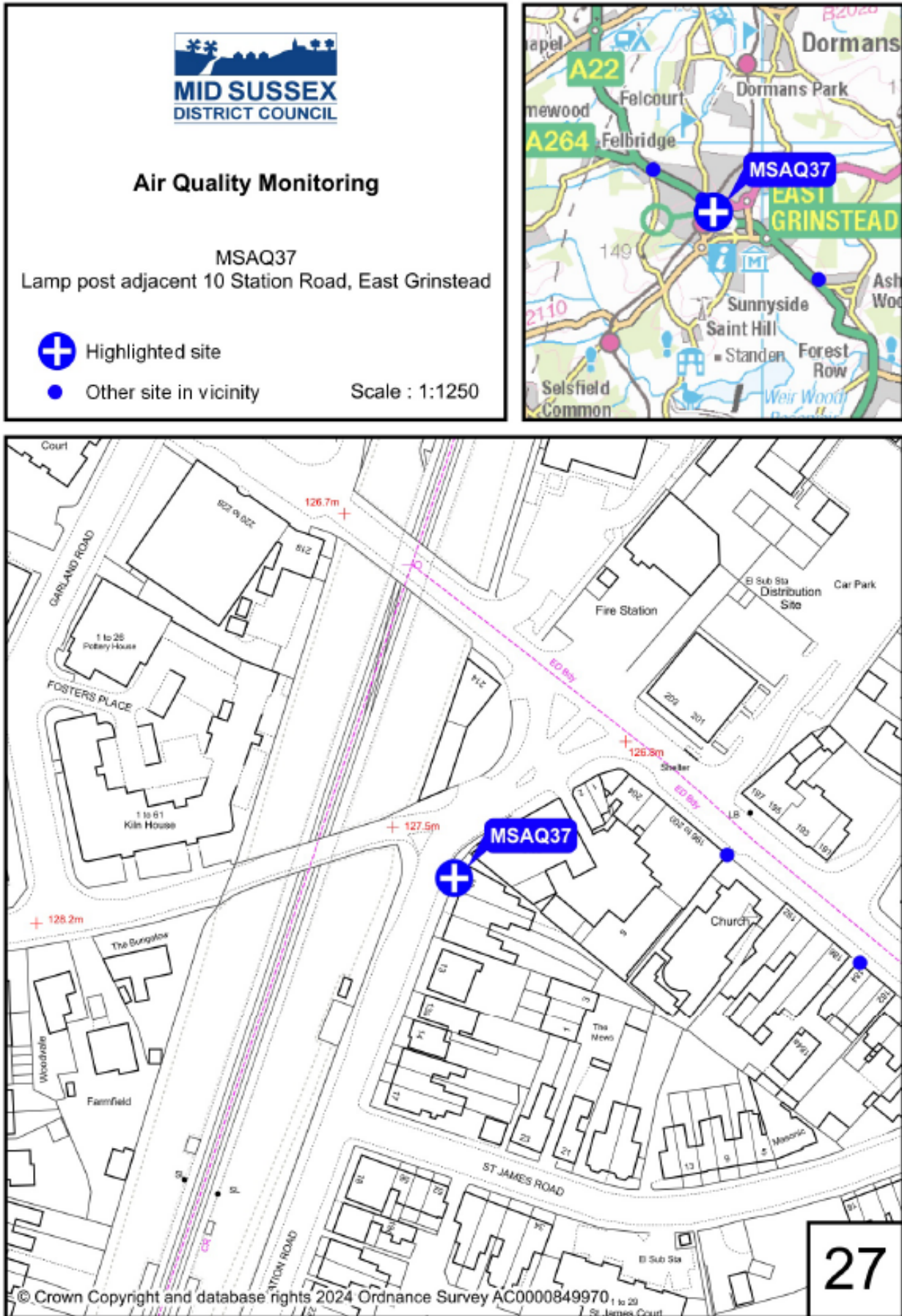


Figure D.29 – MSAQ38 Lamp Post adjacent 196-200, London Road, East Grinstead

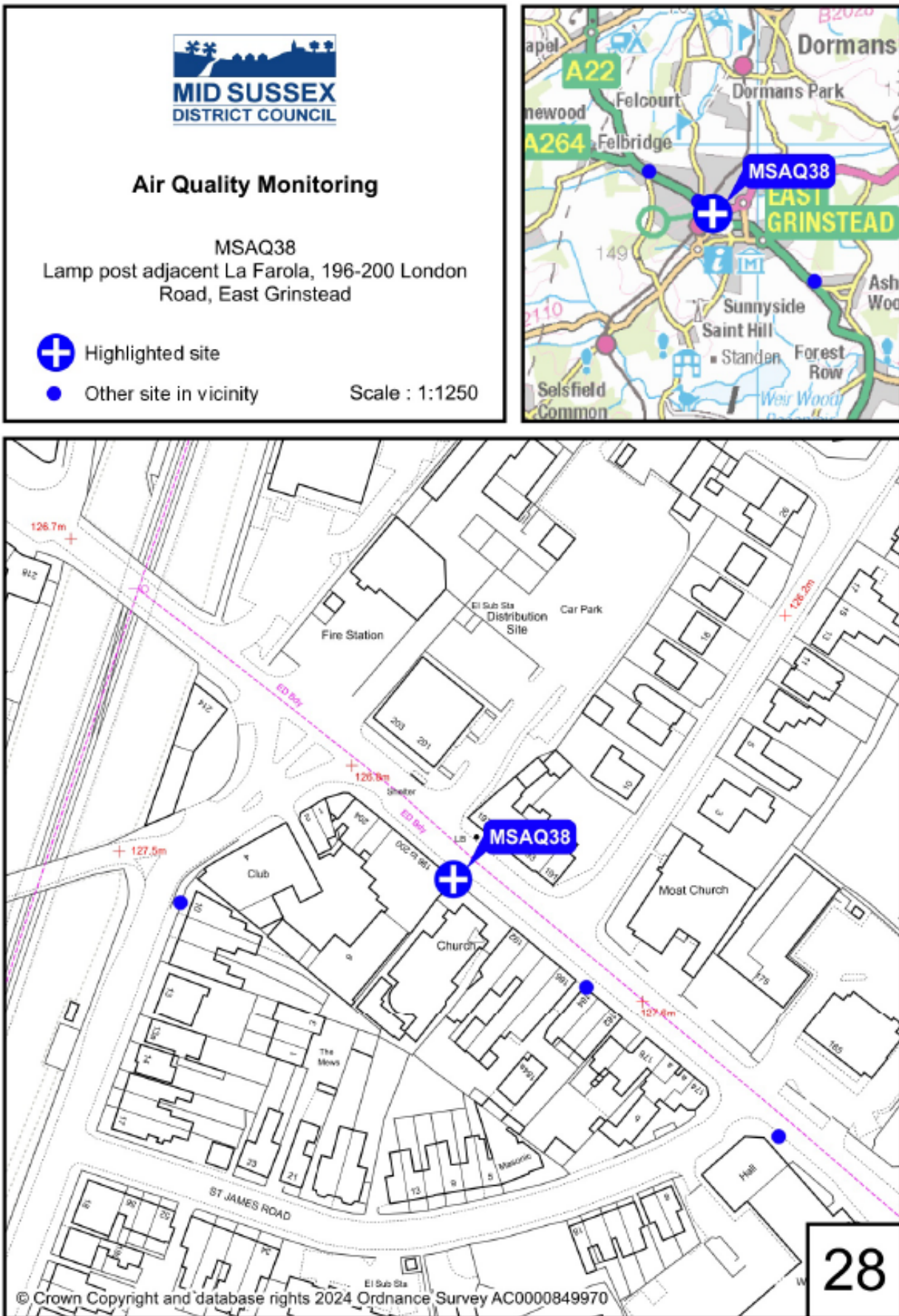


Figure D.30 – MSAQ39 Highway sign adjacent 1-45 White Lion Close, East Grinstead

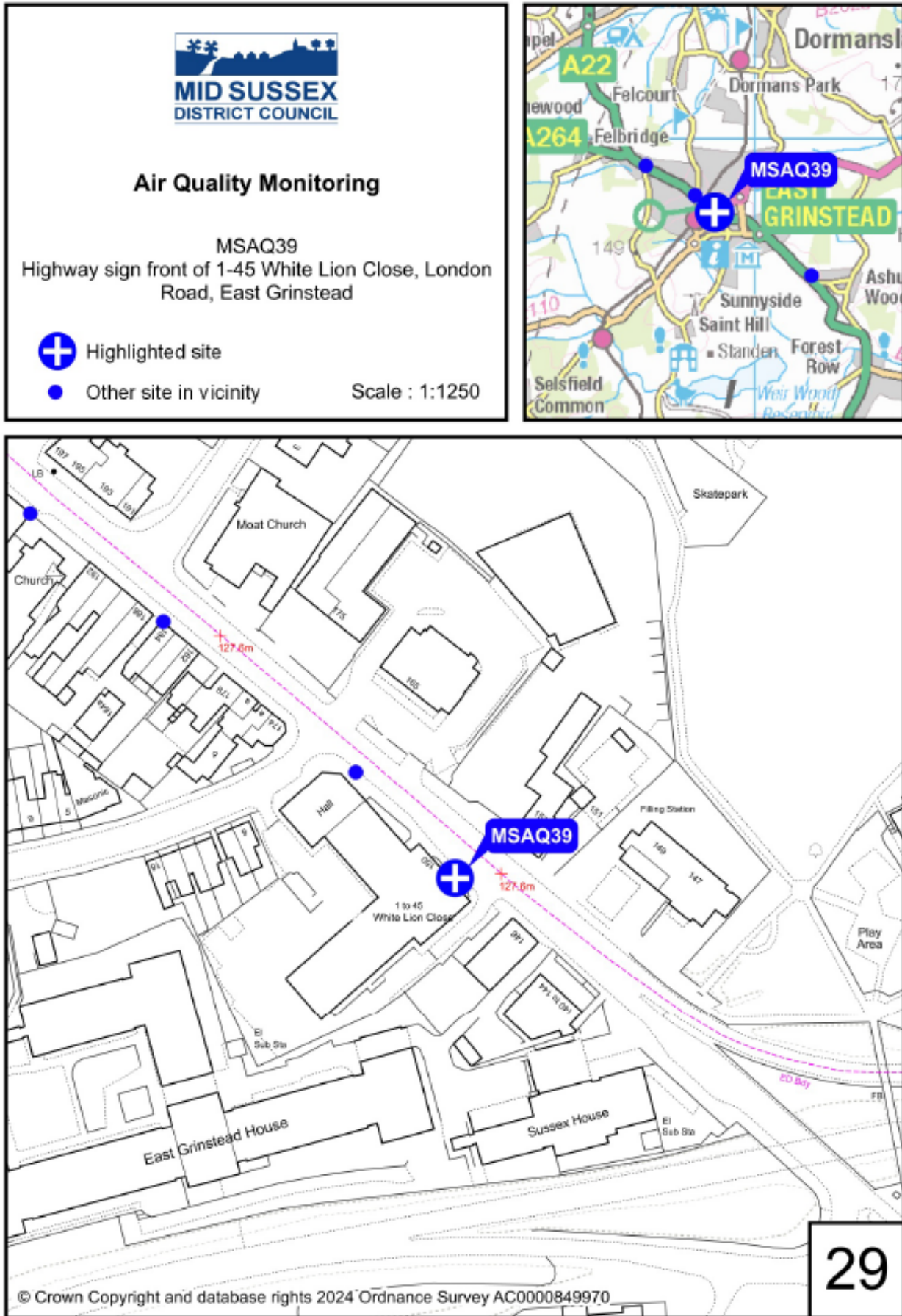


Figure D.31 – MSAQ40 Telegraph Pole adjacent Stroudley Drive, Burgess Hill

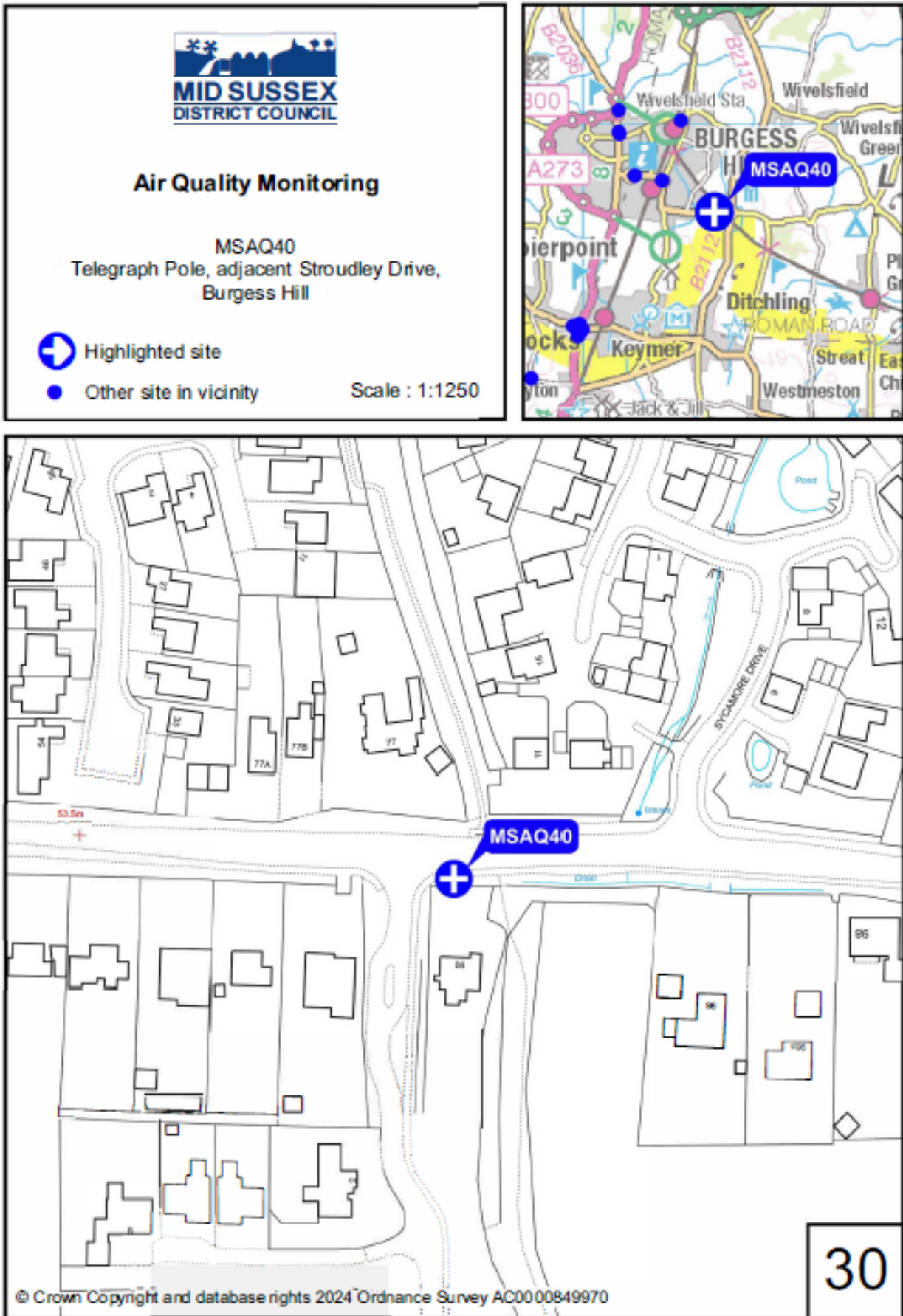


Figure D.32 – MSAQ41 Prospect House, Junction Road, Burgess Hill

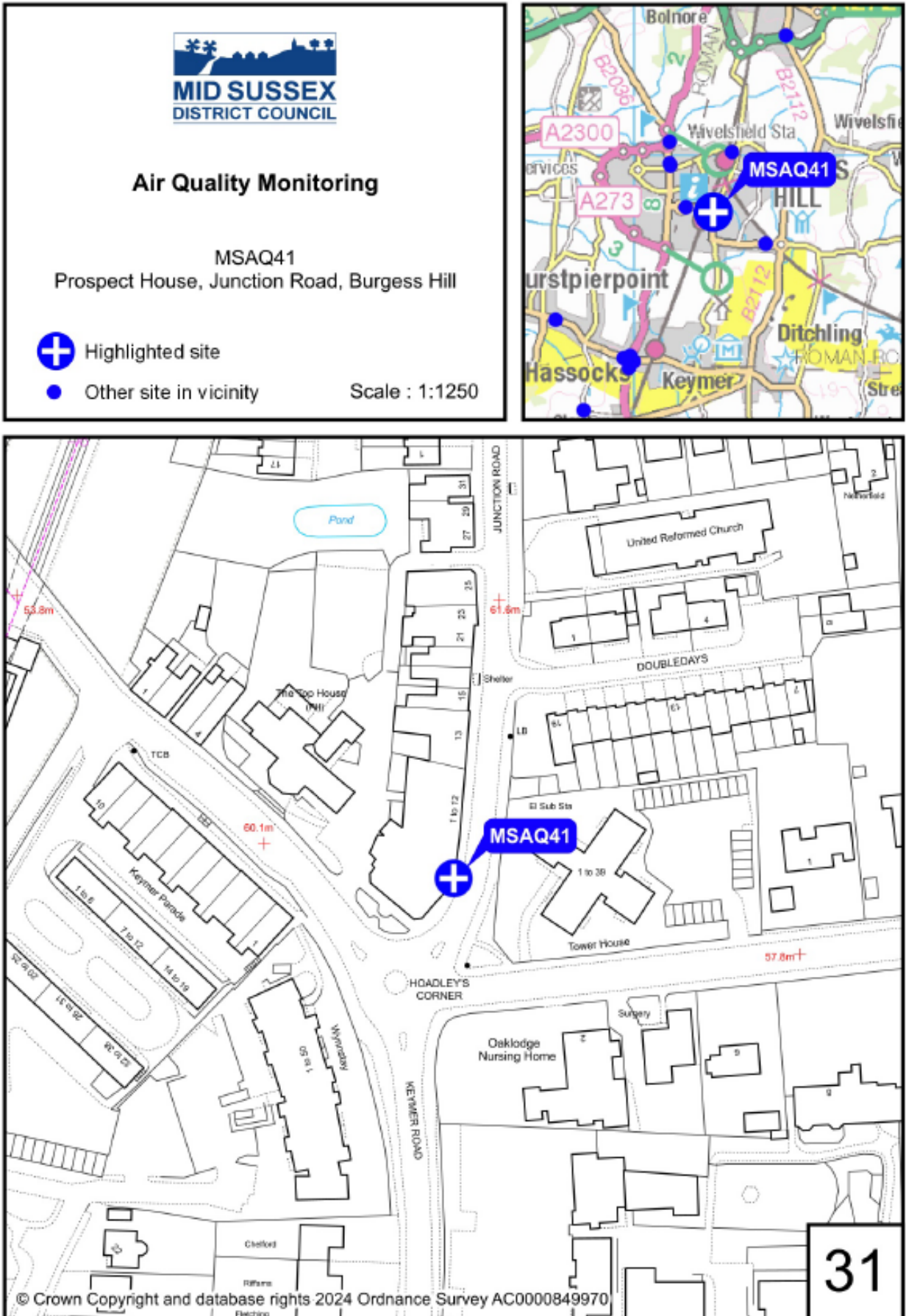


Figure D.33 – MSAQ42 Lamp Post adjacent 20 High Street, Ardingly

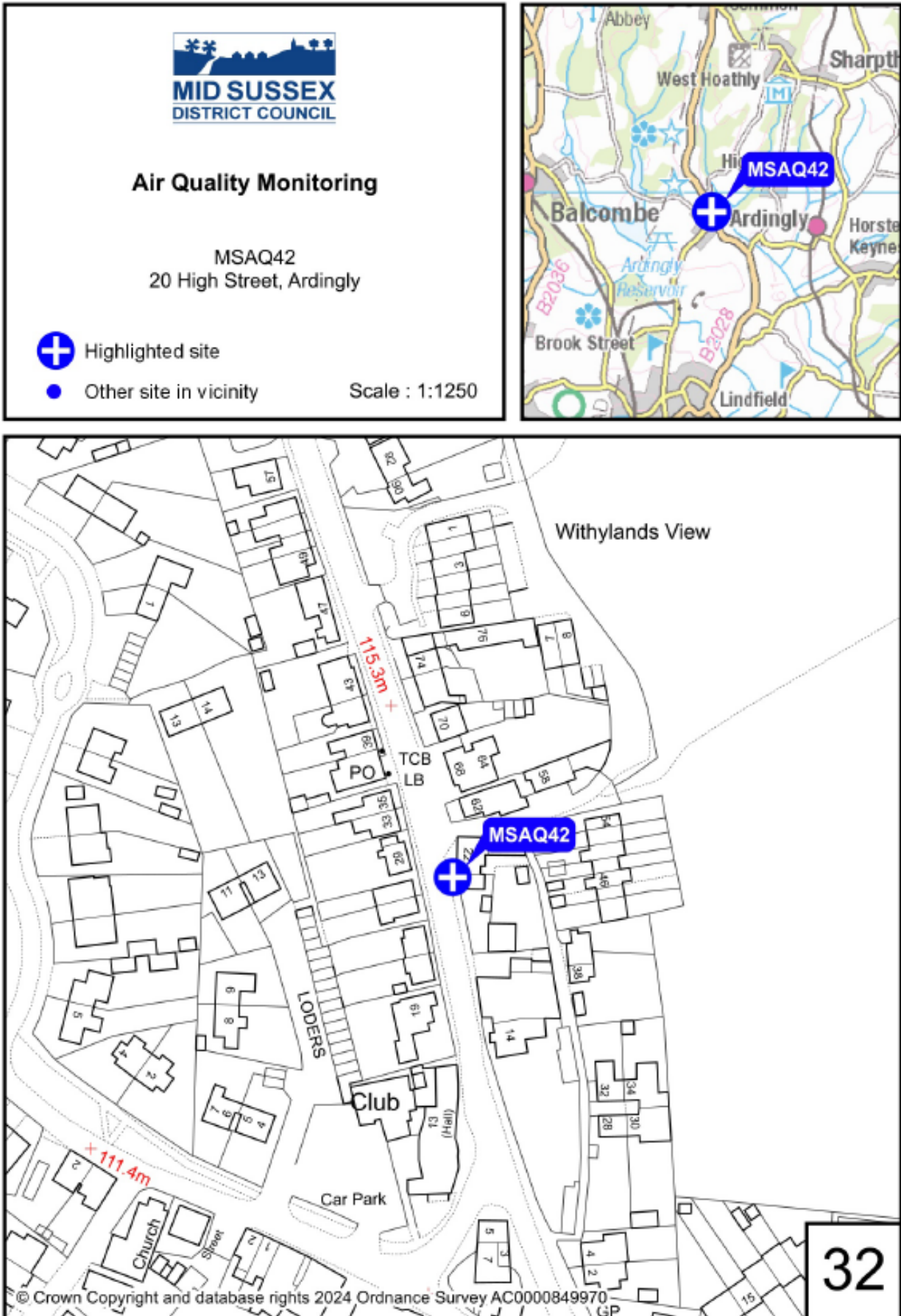


Figure D.34 – MSAQ43 Tubes on Continuous monitor adjacent Kingdom Hall, London Road, East Grinstead

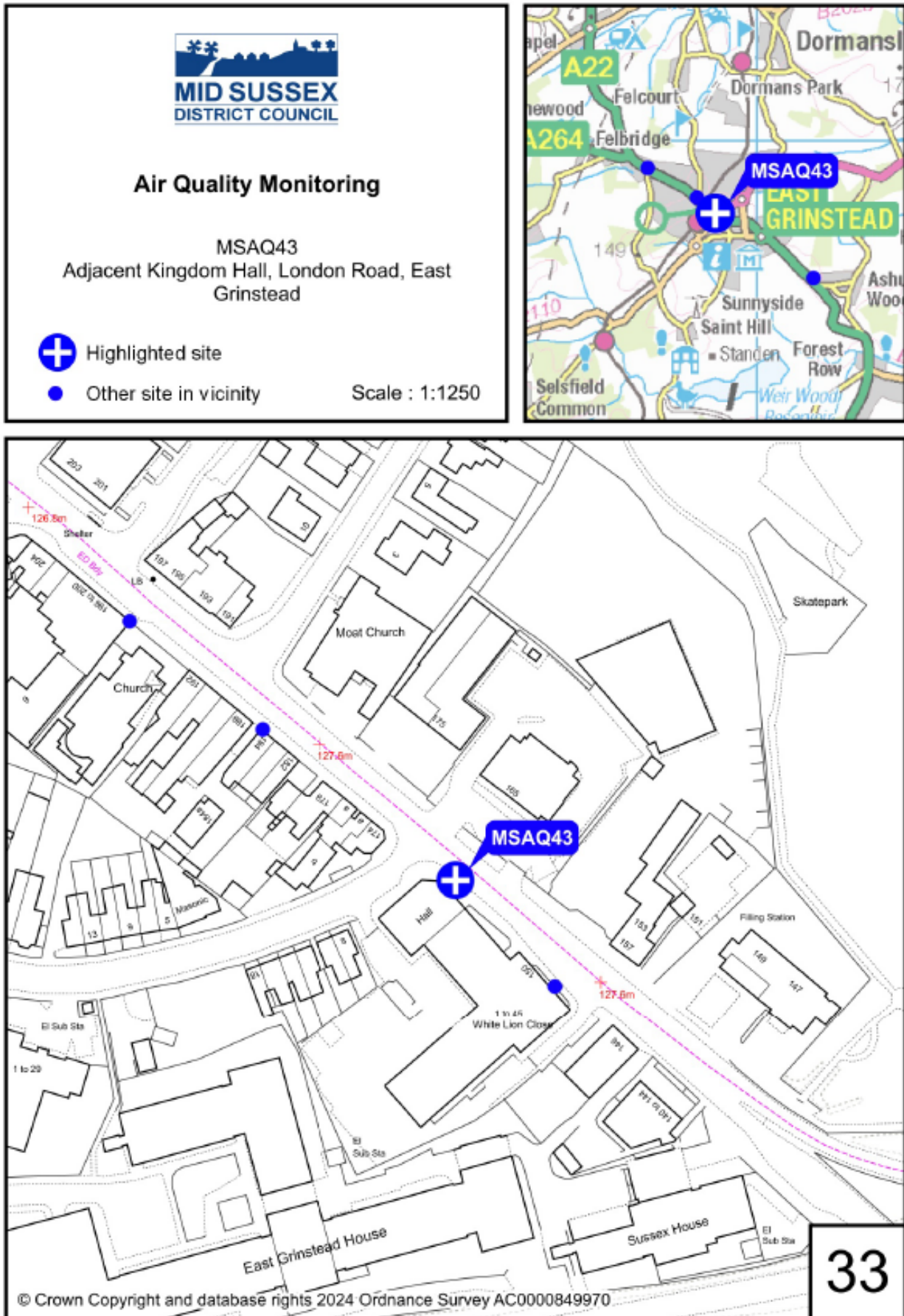


Figure D.35 – MSAQ44 Telegraph Pole, High Street, Handcross

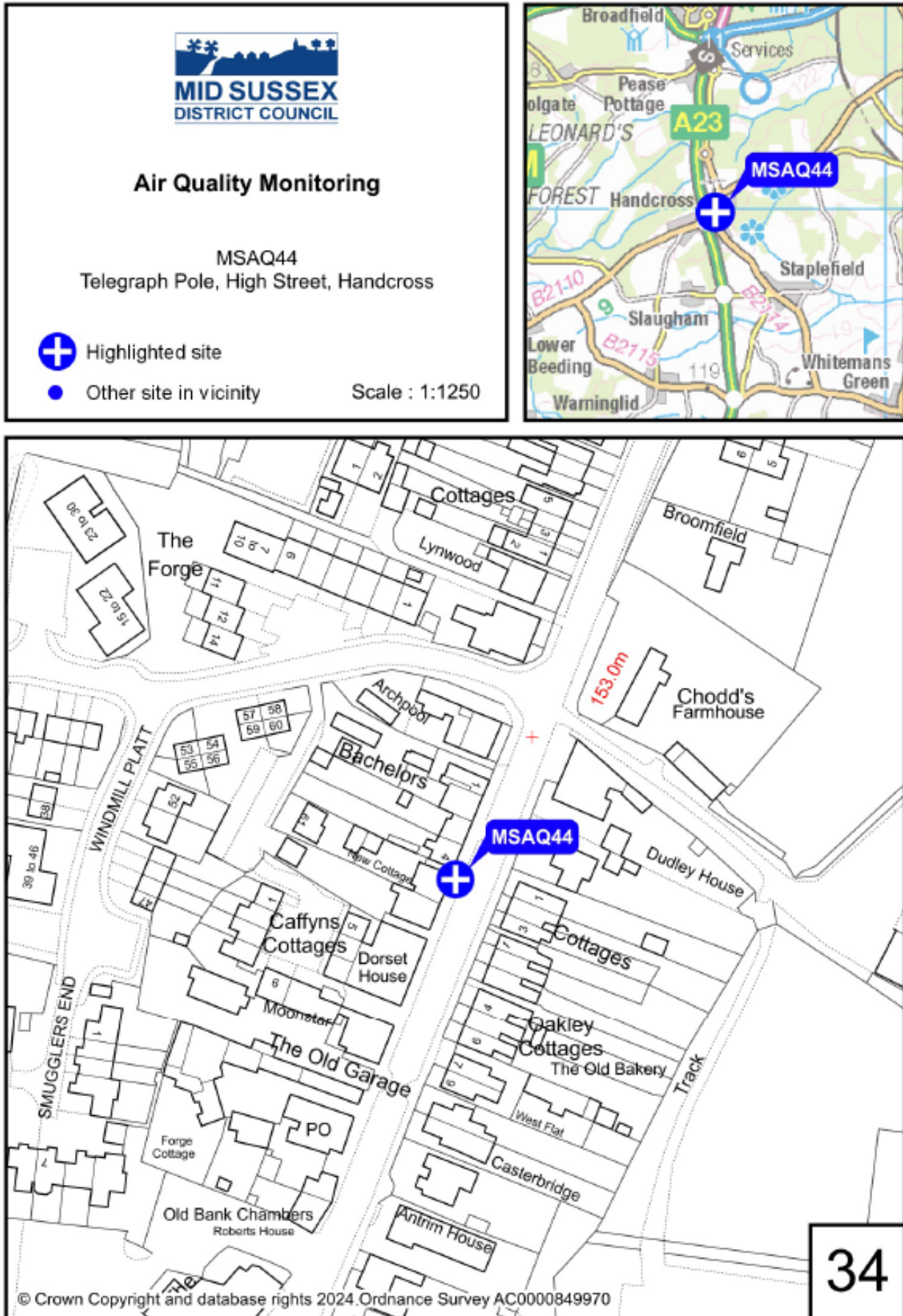


Figure D.36 – MSAQ45 Telegraph Pole adjacent 1 West View Villas, Cuckfield Road, Ansty

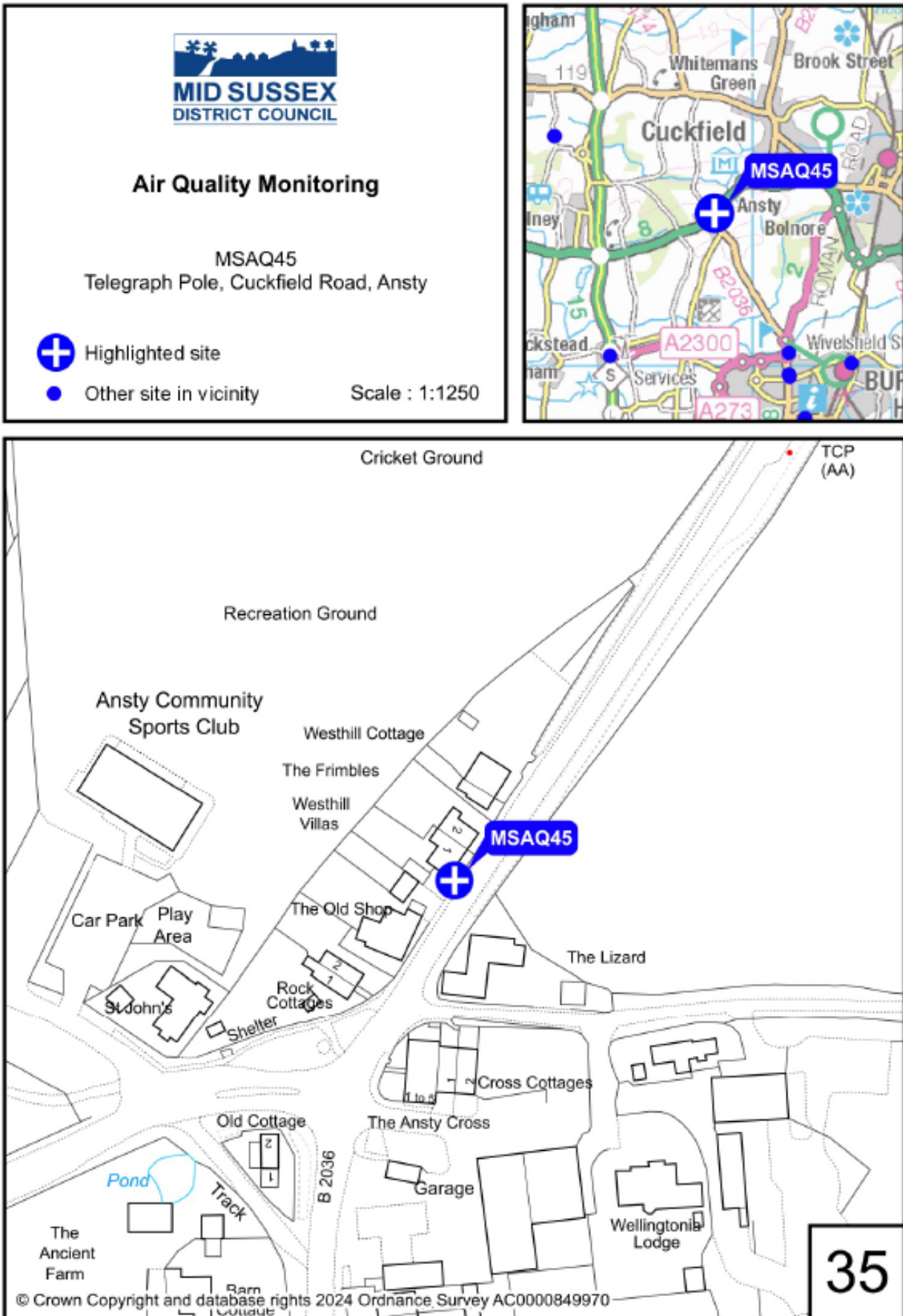


Figure D.37 – MSAQ46 Lamp Post on footpath to Tudor Gardens, London Road, Burgess Hill

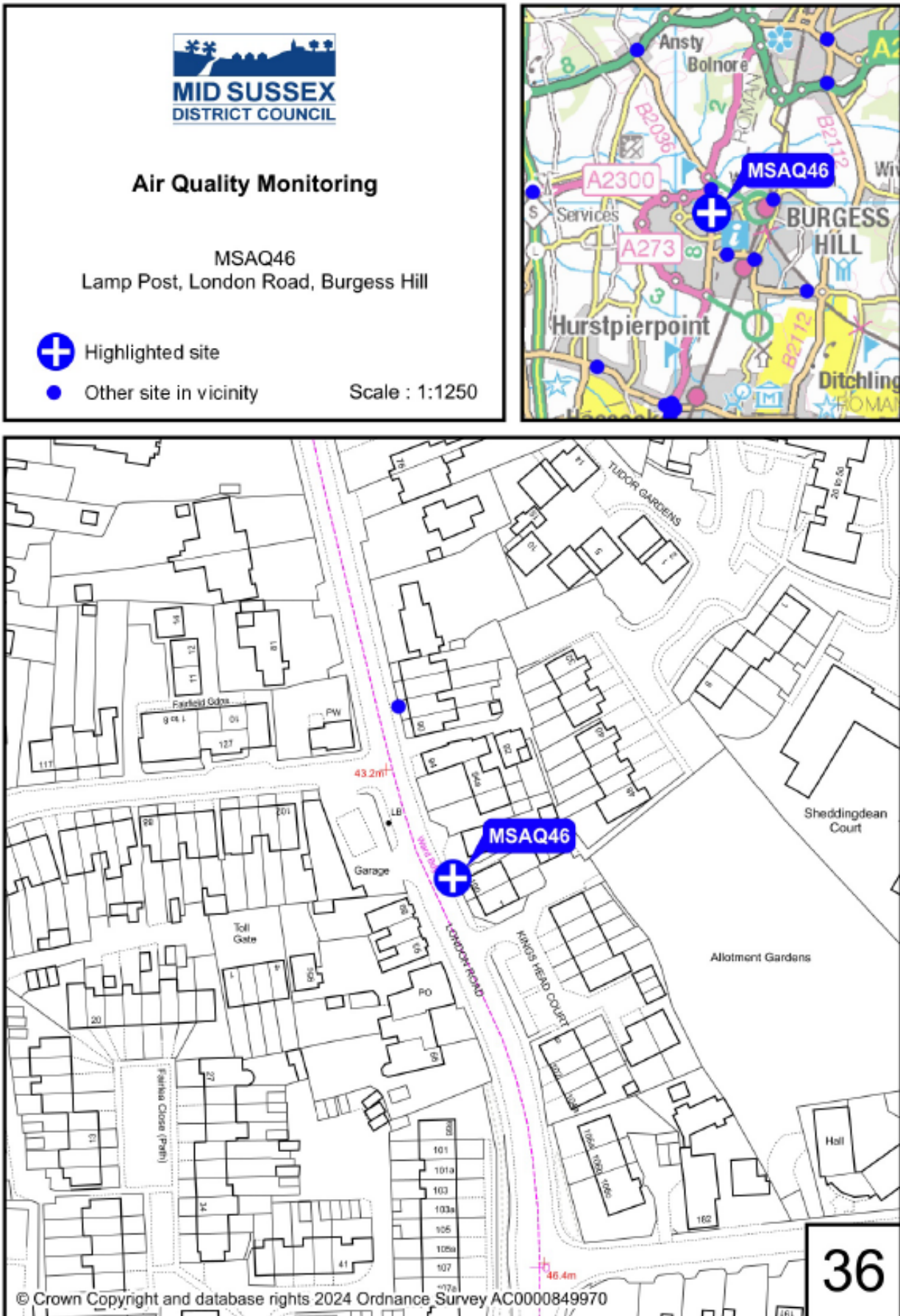


Figure D.38 – Air Quality Management Area Stonepound Crossroads, Hassocks

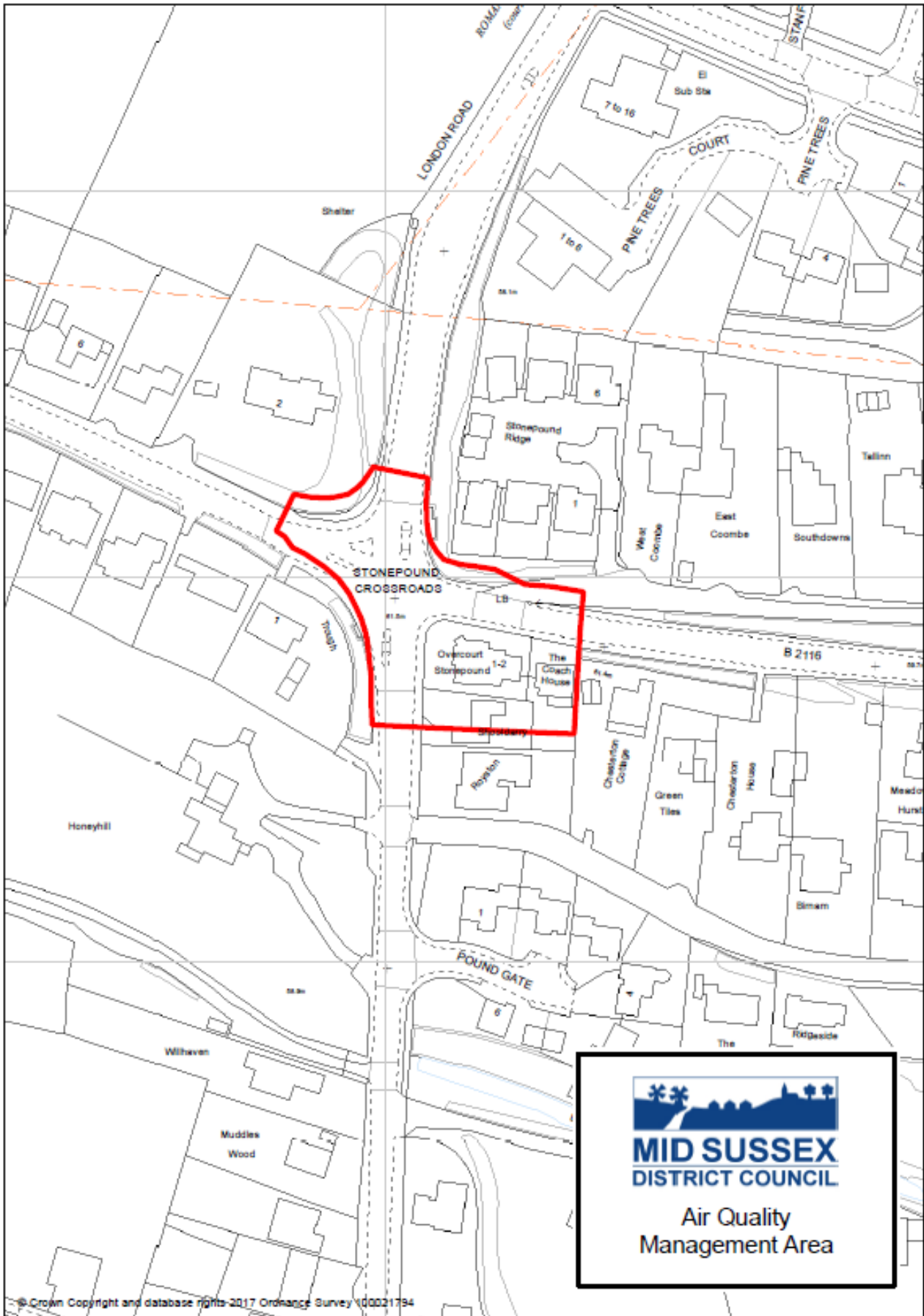
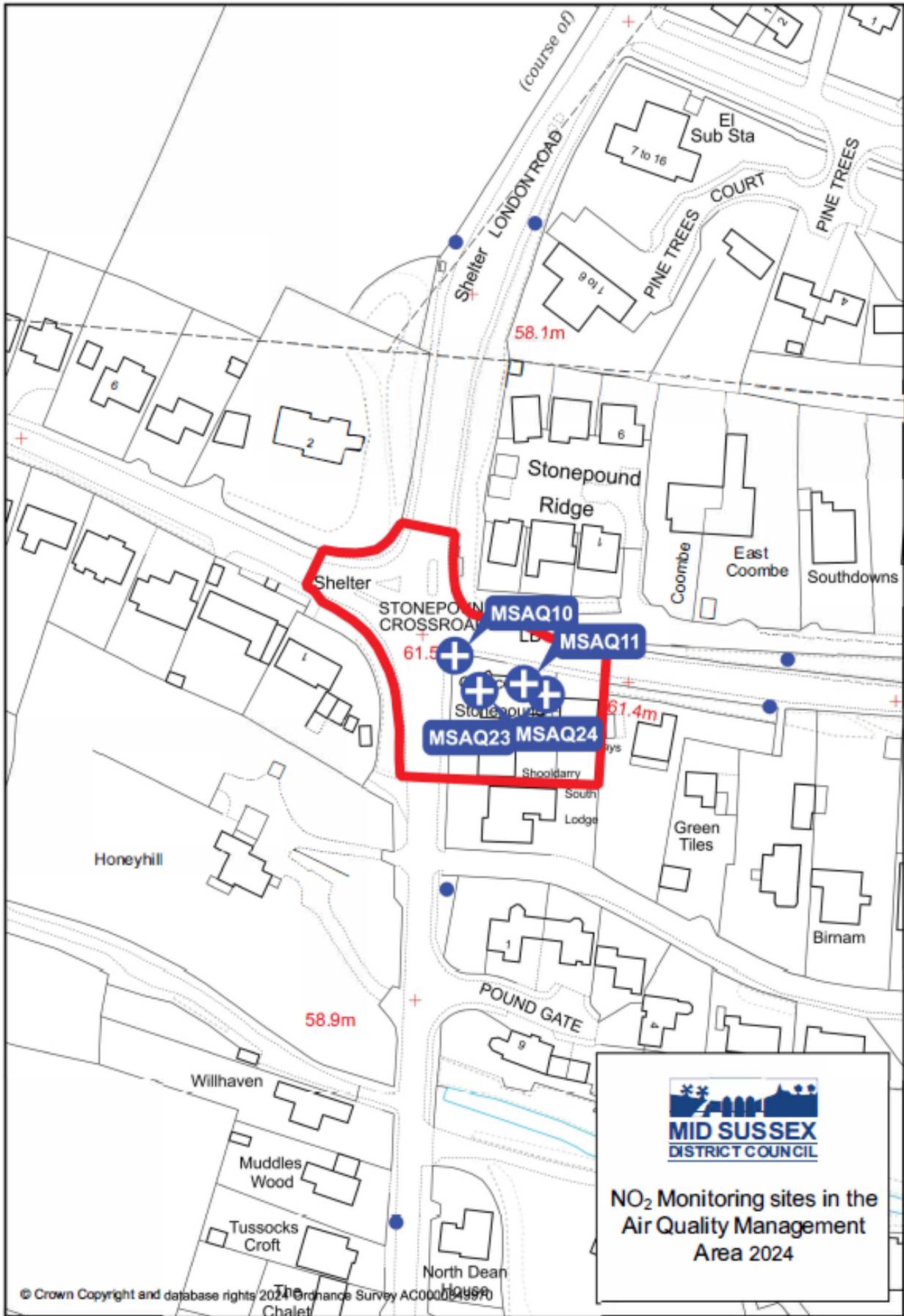


Figure D.39 – NO₂ Monitoring sites within AQMA Stonepound Crossroads, Hassocks



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England⁷

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

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

Glossary of Terms

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

References

- Local Air Quality Management Technical Guidance LAQM.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.