2018 Air Quality Annual Status Report (ASR)

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

July 2018

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Executive Summary: Air Quality in Our Area

This report details the results of air quality monitoring undertaken in 2017 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 declared an AQMA at Stonepound Crossroads in Hassocks in 2012. Since then pollutions levels have started to decline. 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 believe that by working together with the public and our partners, we can reduce reliance on the car and improve the air that we all breathe.

Air Quality in Mid Sussex

Air pollution is associated with a number of adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children and older people, and those with heart and lung conditions. There is also often a strong correlation with equalities issues, because areas with poor air quality are also often the less affluent areas[1,2].

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion[3].

[1] Environmental equity, air quality, socioeconomic status and respiratory health, 2010
[2] Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006
[3] Defra. Abatement cost guidance for valuing changes in air quality, May 2013

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 a National Park, with a significant number of villages, hamlets, ancient churches and woodlands in character and does not incorporate a significant heavy industrial base. Locally, the most significant contributions to poor air quality come from road transport and the air pollutant of most concern is nitrogen dioxide (NO_2).

Road transport is responsible for some 80% of NO_2 concentrations at the roadside, with diesel vehicles of greatest concern at a local level. This is due in part to improvements in real world emissions testing showing that laboratory test-based emission standards have not delivered the expected reductions.

The main source of air pollution in the district is road traffic emissions mostly from major roads, notably the increased use by HGV traffic on the A2300 link from the A23 and the A273 north and south of Hassocks.

Air quality monitoring and modelling carried out by the Council indicated that despite good air quality within most of the District, the air quality objectives for Nitrogen Dioxide (NO_2) were not being met in the Stonepound Crossroads area of Hassocks. Therefore, in March 2012 an Air Quality Management Area (AQMA) was declared at Stonepound Crossroads Hassocks.

Monitoring results in 2017 show a decrease in the Nitrogen Dioxide (NO_2) levels across the district compared to those recorded in 2016. The long-term trend, despite an increase in 2016, appears to be downwards.

Within the AQMA at Stonepound Crossroads in Hassocks the main pollutant (NO_2) is from road traffic emissions. Exceedances are due to the topography and volume of road traffic. Since the AQMA was declared there has been an overall reduction in measured NO_2.

The Council have drawn up an Air Quality Action Plan (AQAP) which focuses on a range of measures designed to limit the exceedance of the NO_2 air quality objective of 40ug/m^3. These include:

- Ensuring traffic light sequencing is operating at optimum efficiency
- Signage and advertising to encourage use of the A2300 as an alternative route

- Future widening of the A2300 as part of large development
- “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 development affecting the AQMA

Although the work under Local Air Quality Management (LAQM) is the legal obligation of district councils, actions aimed at improving air quality often require the cooperation of various departments and organisations. Mid Sussex District Council works in conjunction with other stakeholders, such as planning, Public Health England, West Sussex County Council (WSCC) highways, neighbouring districts, the Sussex-Air Partnership and the Environment Agency. 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 group has been set up, the work of which contributes largely to the development of Action Plans for the AQMA and the district as a whole. The Council is consulted by the Environment Agency upon the granting of environmental permits for ‘Part A1’ 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* and coldAlert 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 e-mail for individuals with asthma or poor respiratory health. This service is also available as a smart-phone app.

Actions to Improve Air Quality

Mid Sussex District Council has taken forward a number of measures during the current reporting year of 2017 in pursuit of improving local air quality. The key action plans in 2017 focused on a range of measures designed to limit the exceedance of the NO_2 air quality objective. These include:

- Ensuring traffic light sequencing continues to operate at optimum efficiency
- Signage and advertising to encourage use of the A2300 as alternative route
- Future widening of the A2300 as part of a forthcoming development
- Working with local schools to amend travel plans
- Working with Planning to ensure maximum mitigation measures implemented for any new development affecting the AQMA
- 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
- MSDC are part of SAQP's successful bid to Defra for funding of an anti-idling awareness campaign where schools and businesses near to AQMA's in Sussex will be visited as part of the campaign

Conclusions and Priorities

The only exceedances found in 2017 remain within the existing AQMA at Hassocks. The underlying trend for NO_2 levels within the AQMA, and in the district generally, remains downward. New residential developments near to the AQMA have been granted planning permission. However, modelling indicates that increases in pollution attributable to these developments are not "significant" and the downward trend in local pollution is likely to continue.

Mid Sussex District Council has taken forward a number of measures during the current reporting year of 2017 in pursuit of improving local air quality.

The Council's priorities for the coming year are:-

- 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 (Air Alert)
- 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 and Easit membership benefits
- Improvement to new Cycling and Walking routes from Hassocks Station to the South Downs Way via Lodge Lane
- Draft Hassocks Neighbourhood Plan includes reference to supporting additional cycle ways and bridleways, including a route to Clayton and Hurstpierpoint
- Mid Sussex are part of WSCC's *Breathing Better: a partnership approach to improving air quality in West Sussex.*
- The County Council is currently working with Sustrans to consider a prioritisation .approach to the delivery of cycle route infrastructure across the county
- Section 106 funds were allocated from the Sustainable Transport Fund to upgrade slow electric vehicle chargers to fast chargers in MSDC car parks. Rapid chargers exist in the car park at Hassocks Train Station. New sites for charging to be identified in liaison with Planning Officers and others.
- A group of council officers from Parking, Sustainability, Environmental Protection, Planning and Planning Policy has been formed to consider a new strategy to increase EV charging point infrastructure within the district.
- Car sharing is being promoted through the Green Travel Pages on the Mid Sussex District Council intranet.
- Hassocks Parish Council Parking and Traffic Flow Report includes consideration of parking restrictions on the roads in the area north east of the

crossroads (e.g. Stanford Avenue), to dissuade commuters from driving through the AQMA to park for free during the day.

- Continuing to educate & encourage members of the public to reduce reliance on car use.
- Effective communication of the issues to the public, professional partners and colleagues.

Local Engagement and How to get Involved

Local Members have received specific training on Air Quality and Planning.
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, including the airAlert and coldAlert services:

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 e-mail for individuals with asthma or poor respiratory health.
This service is also available as a smart-phone app.

coldAlert

Sussex Air offers to residents in Sussex free cold weather alerts. The service is open over the winter months, normally from November to March, and sends alerts by text/SMS, voice-mail or e-mail to individuals who may be susceptible to the cold weather.
This service is also available as a smart-phone app.

To receive local air pollution alerts and /or cold weather alerts you register at

- airAlert online at www.airalert.info/
- coldAlert online at www.coldalert.info/
- both by telephone on 01273 484 337
- alternatively download the airAlert app for Apple or Android phones

Additionally, members of the public can access:

- Plan your route via Travel West Sussex at http://www.travelwestsussex.co.uk/
- Find out from your 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

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1 Local Air Quality Management

This report provides an overview of air quality in Mid Sussex during 2017. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995) and the relevant Policy and Technical Guidance documents.

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

The statutory air quality objectives applicable to LAQM in England can be found in Table E.1 in Appendix E.

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

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

A summary of the AQMA declared by Mid Sussex can be found in Table 2.1.

Further information related to declared or revoked AQMAs, including maps of AQMA boundaries are available online at https://www.midsussex.gov.uk/media/1811/stonepound-crossroads-air-quality-management-area-order.pdf.

Alternatively, see Appendix D:
Map(s) of Monitoring Locations and AQMAs, which provides for a map of air quality monitoring locations in relation to the AQMA.

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	City / Town	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance (maximum monitored/modelled concentration at a location of relevant exposure)				Action Plan		
						At Declaration		Now		Name	Date of Publication	Link
Mid Sussex District Council AQMA (No.1) 2012	13/03/2012	NO2 Annual Mean	Hassocks	An area encompassing 3 residential properties at the junction of Stonepound Crossroads	YES	47	µg/m3	38.5	µg/m3	Mid Sussex District Council Air Quality Action Plan	2017	www.midssussex.gov.uk/media/1812/air-quality-action-plan-stonepound-crossroads.pdf.

☒ **Mid Sussex District Council confirm the information on UK-Air regarding their AQMA is up to date**

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

Defra's appraisal of last year's Annual Status Report (ASR) concluded: *A number of measures in the plan are now complete or are waiting for approval of the Neighbourhood Plan for Hassocks before implementation. The local authority has indicated that further action plan measures, not yet identified, will be necessary to achieve compliance with the AQ objectives at Stonepound Crossroads AQMA. The plan for identifying and evaluating these measures has not been provided in the current ASR.* The local authority has updated its action plan and has determined that no additional measures are presently required given the underlying trend. Pollution levels are predicted to fall below 40 µg/m^3 within the near future and all available cost effective measures are already being utilised. Mid Sussex District Council has taken forward a number of direct measures during the current reporting year of 2017 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2.

Key completed measures are:

- Traffic light sequencing operating at optimum level
- "Cut Engine, Cut Pollution" signs erected
- Air Alert service available
- District Plan now adopted including policies on Transport and Pollution
- Signage to encourage use of the A2300 as alternative route
- Continued working with Planning to ensure maximum mitigation measures implemented for all new developments in the vicinity of the AQMA
- Car sharing is promoted through the Green Travel Pages on the MSDC intranet.
- Working through the Mid Sussex Wellbeing Hub on initiatives aimed at respiratory illnesses.
- Links to Air Alert and Cold Alert published on the Council's website

- Mid Sussex District Plan includes reference to supporting additional cycle ways and bridleways, including routes to Clayton and Hurstpierpoint
- Section 106 funds were allocated from the Sustainable Transport Fund to successfully upgrade slow electric vehicle chargers to fast chargers in MSDC car parks.

Mid Sussex District Council expects the following measures to be completed over the course of the next reporting year:

- Commencement of improvements to new cycling and walking routes from Hassocks Station to the South Downs Way via Lodge Lane.
- The County Council continues to work with Sustrans to consider a prioritisation approach to the delivery of cycle route infrastructure across the county.
- New strategy for EV charging to be identified in liaison with Planning Officers, Wellbeing and other council officers.

Mid Sussex's priorities for the coming year are

- To effectively use the planning regime to ensure appropriate mitigation measures are used for all new development, especially close to the AQMA.
- To incentivise staff to use more sustainable methods of travel whenever possible and to continue to promote the cycle to work scheme and Easit membership benefits.
- To continue working with partners in Sussex Air Quality Partnership on a number of initiatives including engaging more and more with Public Health and participating in the newly funded Anti-Idling Campaign.

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

- The existing restraints preventing improvements at the AQMA – traffic light sequencing is operating at optimum performance; road widening or other measures to improve flow limited by topography; alternative routes viewed by users as unreliable or taking longer.

- New development – the challenge of finding a balance between the need for new housing and the impact that the related traffic increase will have on existing pollution levels, particularly for forthcoming developments in the vicinity of the AQMA.
- Using available evidence to better understand air pollution in the context of public health and to disseminate this information.

Progress on minimising HGV movements & encouragement of alternate transport modes has been slower than expected due to the fact that whilst funding has been received, the timing of improvements to the A2300 road is linked to progress with the Northern Arc development. The Neighbourhood Plan for Hassocks is yet to be approved with regard to the promotion of new cycle routes and will involve commitment from West Sussex County Council (WSCC) for implementation.

The measures stated above and in Table 2.2 will help to contribute towards compliance, and Mid Sussex District Council anticipates that these measures in combination with the gradual modernisation of the vehicle fleet should result in a continuation of the existing downward trend in pollution levels, leading to future achievement of compliance and enabling the revocation of Stonepound Crossroads AQMA.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
1	Traffic Light sequencing	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	MSDC, WSCC	Complete	Current	n/a	Reduced vehicle emissions from more efficient flow	Initial optimisation complete	2019/20	Re-design of junction being considered as part of developer led junction proposals
2	Reducing HGV Throughflow by use of Advisory Lorry Routes	Freight and Delivery Management	Route Management Plans/ Strategic routing strategy for HGV's	WSCC, Highways Agency	Ongoing	Ongoing	n/a	Reduced vehicle emissions from fewer HGV's	Some signs in place, publicity drive under consideration, road upgrade planned	2019	Alternative route not preferred option for drivers, further funding to be applied for from LGF
3	Cut Engine, cut pollution signs	Public Information	Via other mechanisms	WSCC, MSDC	Complete	Complete	n/a	Reduced vehicle emissions	Complete, possible re-design in 2019	2019	First phase successful, second phase on-going
4	MSDC Travel Plan	Promoting Travel Alternatives	Workplace Travel Planning	MSDC, Easit	Complete	Ongoing	n/a	Less private vehicle use	Council has joined Easit, Green travel day held, Cycle 2 Works scheme. Further events planned	2019	Staff survey currently open
5	School & Work Travel Plans	Promoting Travel Alternatives	School Travel Plans	WSCC, DfT	Some complete	Ongoing	n/a	Less private vehicle use	2 Schools with Travel plans, funding for Walk To scheme, also Bike It, car share and Travelwise schemes	2020	Applications for cycleway schemes made. Not adopted so far.

6	Improve & Promote cycle Routes	Promoting Travel Alternatives	Promotion of cycling	MSDC, WSCC	Ongoing	Consultation	n/a	Less private vehicle use	Feasibility study for new route being considered, local cycling groups formed, Haywards Heath to Burgess Hill route option agreed	Not known	Hassocks Station to South Downs route stalled due to land access issues. Alternative route proved not viable.
7	Encourage Alternative Transport	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	MSDC, WSCC	Complete	Complete	EV charging points usage data	Less private vehicle use	W Sx travel website available, Bikeability training, MSDC car park EV charge points upgraded, Hassocks Station chargers upgraded, new sites being considered, Sustainable Travel event for business well attended, car share promotion,	2015-17	n/a
8	Partnership Work with Bus & Train operators	Alternatives to private vehicle use	Other	Govia, WSCC, Bus Companies	Ongoing	Ongoing	n/a	Greater use of public transport	Improvements at train station including cycle parking.	2021	Limited bus routes means real time signage stalled, s106 funds for real time signage in B Hill
9	Air Alert Service & Sussex Air Website	Public Information	Via other mechanisms	MSDC, Sussex Air	Complete	Ongoing	Number of Air Alert subscribers (up by 11%)	Advanced warning of poor air quality, dissemination of data and info	Website has monitoring data for whole of Sussex, Air Alert service available	2018	Website under review, overhaul likely
10	MSDC District Plan	Policy Guidance and Development Control	Other policy	MSDC	Complete	Complete	n/a	Specific policies covering pollution, air quality and transport	District plan now published, additional guidance documents linked	2018	Updated Sussex Air AQ document due for release Summer 2018
11	Restricted parking in Hassocks	Traffic Management	Workplace Parking Levy, Parking Enforcement on highway	Hassocks parish Council, WSCC	Ongoing	Ongoing	n/a	Parking restrictions to reduce car use in AQMA	Parish report, public consultation. Parish Council looking to privately finance TRO to reduce commuter parking	2019	Proposals may be objected to by residents who wish to park there. Private finance may be an issue
12	Consider Lower Speed Limit	Traffic Management	Reduction of speed limits, 20mph zones	WSCC	Complete	Complete	n/a	Less traffic	Considered non-viable and unlikely to have positive impact.	2017	Non-viable

13	Raise Awareness	Public Information	Via other mechanisms	WSCC & Public Health	Forthcoming	Forthcoming	n/a	Greater awareness	Work with partners to disseminate benefits of active travel etc. and techniques for reducing exposure	2019	Limited resources, requires "buy in" from partners and the public

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

As detailed in Policy Guidance LAQM.PG16 (Chapter 7), local authorities are expected to work towards reducing emissions and/or concentrations of $PM_{2.5}$ (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that $PM_{2.5}$ has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Mid Sussex District Council is taking the following measures to address $PM_{2.5}$: Mid Sussex District Council undertakes air quality emissions reduction measures (set out in table 2.2) which are aimed at reducing NO_2 but will also contribute to reducing $PM_{2.5}$ emissions as these air pollutants share similar source, e.g. road traffic emissions, combustion sources.

Mid Sussex will work in partnership with Public health to communicate the impacts of air pollution including $PM_{2.5}$. Additionally, Mid Sussex will utilise the “Air quality and emissions mitigation guidance for Sussex authorities (2013)” to encourage lower emission developments with planning and transport authorities to assist in reducing $PM_{2.5}$ emissions.

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

2.4 Summary of Monitoring Undertaken

2.4.1 Automatic Monitoring Sites

Mid Sussex District Council have no automatic monitoring sites.

2.4.2 Non-Automatic Monitoring Sites

Mid Sussex District Council undertook non- automatic (passive) monitoring of NO_2 at 25 sites during 2017. Table A.2 in Appendix A shows the details of the 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.

2.5 Individual Pollutants

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

2.5.1 Nitrogen Dioxide (NO_2)

Table A.3 in Appendix A compares the ratified and adjusted monitored NO_2 annual mean concentrations for the past 5 years with the air quality objective of 40µg/m^3. For diffusion tubes, the full 2017 dataset of monthly mean values is provided in Appendix B.

2.5.2 Particulate Matter (PM_{10})

Mid Sussex do not monitor for PM_{10}

2.5.3 Particulate Matter ($PM_{2.5}$)

Mid Sussex do not monitor for $PM_{2.5}$

2.5.4 Sulphur Dioxide (SO_2)

Mid Sussex do not monitor for SO_2

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Mid Sussex have no automatic monitoring sites.

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

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube collocated with a Continuous Analyser?	Height (m)
MSAQ1	South Road Haywards Heath	Roadside	533342	123587	NO_2	NO	0	2.5	NO	1.6
MSAQ2	Traunstein Way Bolnore Village Haywards Heath	Roadside	532155	122441	NO_2	NO	45	2.1	NO	2
MSAQ3	London Road East Grinstead	Kerbside	538690	138759	NO_2	NO	18	0.5	NO	2.2
MSAQ5	Lewes Road East Grinstead	Suburban	541245	136996	NO_2	NO	16	1.5	NO	2.3
MSAQ6	Smugglers End Handcross	Roadside	526138	129827	NO_2	NO	0	15	NO	1.8
MSAQ7	Crabbett Park Worth	Suburban	530440	137280	NO_2	NO	0	50	NO	2.15
MSAQ9	Water Tower Colwood Lane Warninglid	Rural	525664	125035	NO_2	NO	40	35	NO	2.1
MSAQ10	Stonepound Crossroads Hassocks	Roadside	529911	115489	NO_2	YES	6.7	1.5	NO	1.7
MSAQ11	Over Court Northern Façade 1 Keymer Road Hassocks	Roadside	529930	115481	NO_2	YES	0	5.5	NO	2.5

MSAQ12	Telegraph Pole Keymer Road Hassocks	Kerbside	529999	115488	NO_2	NO	26	1.1	NO	2.4
MSAQ13	Lamp Post Keymer Road Hassocks	Kerbside	529995	115476	NO_2	NO	19	0.85	NO	2.3
MSAQ14	Bus Stop London Road Hassocks	Kerbside	529911	115598	NO_2	NO	23	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
MSAQ16	South Bank Lodge Keymer Road Hassocks	Roadside	529918	115441	NO_2	NO	0	11.5	NO	2.4
MSAQ17	Lampost No.4B Brighton Road Hassocks	Kerbside	529894	115340	NO_2	NO	10	1.25	NO	2.2
MSAQ18	Bus Stop Brighton Road Hassocks	Kerbside	529907	115428	NO_2	NO	9	2	NO	2.5
MSAQ19	Lampost 04 Hurst Road Hassocks	Roadside	529779	115557	NO_2	NO	13.2	1.3	NO	2.5
MSAQ20	New Way Lane Hurstpierpoint	Rural	528854	114517	NO_2	NO	100	2	NO	2
MSAQ21	London Road Burgess Hill	Roadside	530792	119821	NO_2	NO	2.5	1.9	NO	2
MSAQ22	Leylands Road Burgess Hill	Roadside	532160	120069	NO_2	NO	3	1.5	NO	2

MSAQ23	Over Court Eastern Façade 1 Keymer Road Hassocks	Roadside	529935	115478	NO_2	YES	0	5.8	NO	2
MSAQ24	Over Court Western Façade 1 Keymer Road Hassocks	Roadside	529918	115476	NO_2	YES	0	7.5	NO	1.8
MSAQ25	Erica Way Copthorne	Kerbside	531176	138829	NO_2	NO	0	4	NO	2
MSAQ26	High Street Lampost No.14 Hurstpierpoint	Suburban	528289	116395	NO_2	NO	0	2.1	NO	2.5
MSAQ27	London Road (A23 Sliproad) Hickstead	Suburban	526870	120238	NO_2	NO	10	3.8	NO	2.2

Notes:

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

(2) N/A if not applicable.

Table A.3 – Annual Mean NO_2 Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2017 (%) [2]	NO_2 Annual Mean Concentration (µg/m^3) [3]				
					2013	2014	2015	2016	2017
MSAQ1	Roadside	Diffusion Tube		92	24.6	22.7	19.5	21.7	20.8
MSAQ2	Roadside	Diffusion Tube		92	14.2	14.9	23.2	23.7	22.3
MSAQ3	Kerbside	Diffusion Tube		75	37.5	39.3	36.9	36.7	35.8
MSAQ4	Suburban	Diffusion Tube		N/A	18.3	18.7			
MSAQ5	Suburban	Diffusion Tube		83	34.3	37.2	32.8	34.5	31
MSAQ6	Roadside	Diffusion Tube		92	23.9	23.3	28	28.7	29.1
MSAQ7	Suburban	Diffusion Tube		92	26.7	27.1	25.3	26.5	23.6
MSAQ8	Roadside	Diffusion Tube		N/A	29	29.5			
MSAQ9	Rural	Diffusion Tube		92	11	8	8	10	9
MSAQ10	Roadside	Diffusion Tube		92	**48.2**	**41.1**	**40.4**	**43.4**	38.8
MSAQ11	Roadside	Diffusion Tube		92	**43.4**	**42.7**	**40.5**	**43.2**	38.5
MSAQ12	Kerbside	Diffusion Tube		83	**40.9**	36.5	35.5	38.2	33.7
MSAQ13	Kerbside	Diffusion Tube		75	**45**	**41**	**42.1**	**44.7**	**43.8**
MSAQ14	Kerbside	Diffusion Tube		92	35.7	**40.5**	35	36	32.5
MSAQ15	Kerbside	Diffusion Tube		92	38.2	35.8	36.9	37.9	35.1
MSAQ16	Roadside	Diffusion Tube		92	24.4	20.4	19.2	20.7	19.8

MSAQ17	Kerbside	Diffusion Tube		92	26.8	27.5	23.4	28	25.7
MSAQ18	Kerbside	Diffusion Tube		92	35.2	33.3	32.2	33.4	29.5
MSAQ19	Roadside	Diffusion Tube		83	21.3	18.4	16.5	18.7	18.6
MSAQ20	Rural	Diffusion Tube		83	10.9	8.8	8.2	9.1	9
MSAQ21	Roadside	Diffusion Tube		92	34	29.8	27.4	32.1	29.5
MSAQ22	Roadside	Diffusion Tube		92	30.6	28.3	27.3	28.4	27.9
MSAQ23	Roadside	Diffusion Tube		92	35.4	33.3	31.8	35.3	33.9
MSAQ24	Roadside	Diffusion Tube		92	28.7	22.5	22.5	28.3	23.1
MSAQ25	Kerbside	Diffusion Tube		92			29.1	30	28.8
MSAQ26	Suburban	Diffusion Tube		92			24.3	25.7	23.9
MSAQ27	Suburban	Diffusion Tube		92			21.4	23.3	20.5

☒ **Diffusion tube data has been bias corrected**

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined.**

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

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

(3) Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per Boxes 7.9 and 7.10 in LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Table A.4 Annual Mean NO_2 Monitoring Results within the AQMA

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2017 (%) (2)	NO_2 Annual Mean Concentration ($\mu g/m^3$) (3)					
					2012	2013	2014	2015	2016	2017
MSAQ10	Roadside	Diffusion Tube	92	92	**47.4**	**48.2**	**41.1**	**40.4**	**43.4**	38.8
MSAQ10 (Distance corrected to nearest relevant exposure)	Roadside	Diffusion Tube	92	92	37.4	37.9	32.9	32.4	34.0	30.5
MSAQ11	Roadside	Diffusion Tube	92	92	**47**	**43.4**	**42.7**	**40.5**	**43.2**	38.5
MSAQ23	Roadside	Diffusion Tube	92	92		35.4	33.3	31.8	35.3	33.9
MSAQ24	Roadside	Diffusion Tube	92	92		28.7	22.5	22.5	28.3	23.1

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

Figure A.1 – Trends in Annual Mean NO_2 Concentrations

Annual mean concentrations (bias corrected) 2011 to 2017 of nitrogen dioxide diffusion tube measurements at five urban centre sites.

Year	London Road Burgess Hill	Leylands Road Burgess Hill	London Road East Grinstead	Lewes Road East Grinstead	South Road Haywards Heath
2011			39.1	35.6	24.2
2012	31.2	27.7	**41.8**	37.6	24.4
2013	34.0	30.6	37.5	34.3	24.6
2014	29.8	28.3	39.3	37.2	22.7
2015	27.4	27.3	36.9	32.8	19.5
2016	32.1	28.4	36.7	34.5	21.7
2017	29.5	27.9	35.8	31.0	20.8

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

In 2013 concentrations reduced at the two sites in East Grinstead and increased at the two Burgess Hill sites.

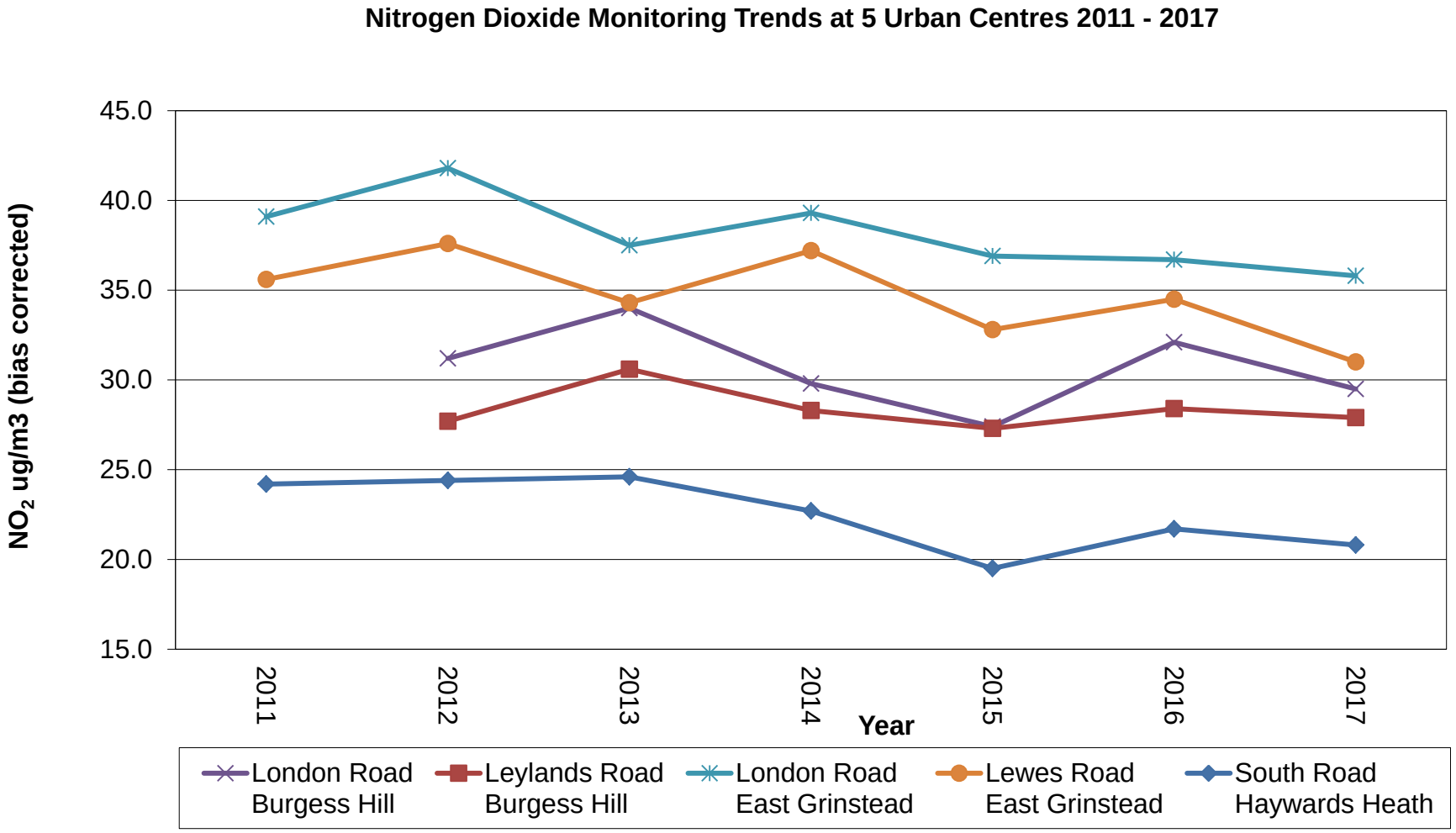
In 2014 concentrations reduced at three of the sites and increased at the two sites in East Grinstead.

All sites showed a reduction in levels in 2015.

4 sites showed an increase in 2016.

All sites showed a reduction in levels in 2017.

Overall the levels have reduced since 2011.


Nitrogen Dioxide Monitoring Trends at 5 Urban Centres 2011 - 2017
NO2 ug/m3 (bias corrected)
45.0
40.0
35.0
30.0
25.0
20.0
15.0
2011
2012
2013
2014
2015
2016
2017
Year
London Road Burgess Hill
Leylands Road Burgess Hill
London Road East Grinstead
Lewes Road East Grinstead
South Road Haywards Heath

Annual mean concentrations (bias corrected) 2011 to 2017 of nitrogen dioxide diffusion tube measurements at three villages, one hamlet and two rural background sites

Year	High Street Hurstpierpoint	London Road Hickstead	Smugglers End Handcross	Crabbett Park Worth (Hamlet)	Warninglid (rural background)	Hurstpierpoint (rural background)
2011			28.2	29.1	10.2	13.5
2012			31.6	30.1	9.2	9.4
2013			23.9	26.7	11.0	10.9
2014			23.3	27.1	8.0	8.8
2015	24.3	21.4	28.0	25.3	8.0	8.2
2016	25.7	23.3	28.7	26.5	10.0	9.1
2017	23.9	20.5	29.1	23.6	9.0	9.0

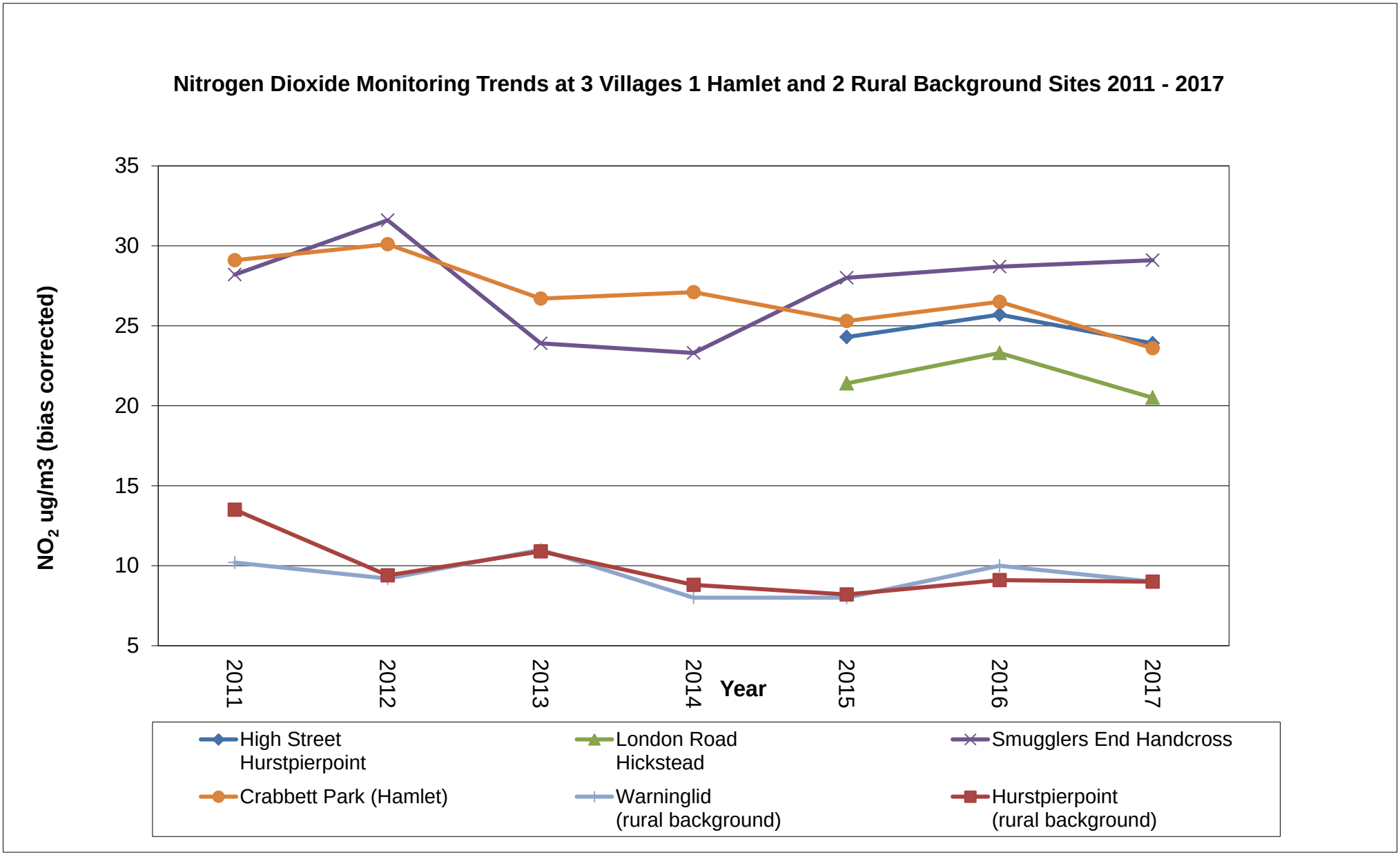
Two of the sites showed an increase in levels in 2012, whilst the other two reduced.

Three of the sites showed a reduction in 2014.

Overall the levels have reduced at 2 of the sites and marginally increased at one since 2011.

Three of the sites showed a reduction in 2017.

Overall the levels have reduced at 2 of the sites and marginally increased at one since 2011.


Nitrogen Dioxide Monitoring Trends at 3 Villages 1 Hamlet and 2 Rural Background Sites 2011 - 2017
NO2 ug/m3 (bias corrected)
35
30
25
20
15
10
5
2011
2012
2013
2014
2015
2016
2017
Year
High Street Hurstpierpoint
London Road Hickstead
Smugglers End Handcross
Crabbett Park (Hamlet)
Warninglid (rural background)
Hurstpierpoint (rural background)

Annual mean concentrations (bias corrected) 2011 to 2017 of nitrogen dioxide diffusion tube measurements at Hassocks.

Year	Lamp Post Keymer Road Hassocks	Telegraph Pole Keymer Road Hassocks	Traffic lights Keymer Road Hassocks	Northern Façade (residential premises) Keymer Road Hassocks	Eastern Façade (residential premises) Keymer Road Hassocks	Western Façade (residential premises) Keymer Road Hassocks	Bus Stop London Road Hassocks	Traffic sign London Road Hassocks	Façade (residential premises) Brighton Road Hassocks	Lamp Post Brighton Road Hassocks	Bus Stop Brighton Road Hassocks	Lamp Post Hurst Road Hassocks
2011	**45.9**		**49.0**	**47.0**			39.7	38.5	23.7	24.8		20.9
2012	**43.4**	40.0	**47.4**	**47.0**			**41.9**	38.4	22.8	25.4		20.7
2013	**45.0**	**40.9**	**48.2**	**43.4**	35.4	28.7	35.7	38.2	24.4	26.8	36.6	21.3
2014	**41.0**	36.5	**41.1**	**42.7**	33.3	22.5	40.5	35.8	20.4	27.5	33.3	18.4
2015	**42.1**	35.5	**40.4**	**40.5**	31.8	22.5	35.0	36.9	19.2	23.4	32.2	16.5
2016	**44.7**	38.2	**43.4**	**43.2**	35.3	28.3	36.0	37.9	20.7	28.0	33.4	18.7
2017	**43.8**	33.7	38.8	38.5	33.9	23.1	32.5	35.1	19.8	25.7	29.5	18.6

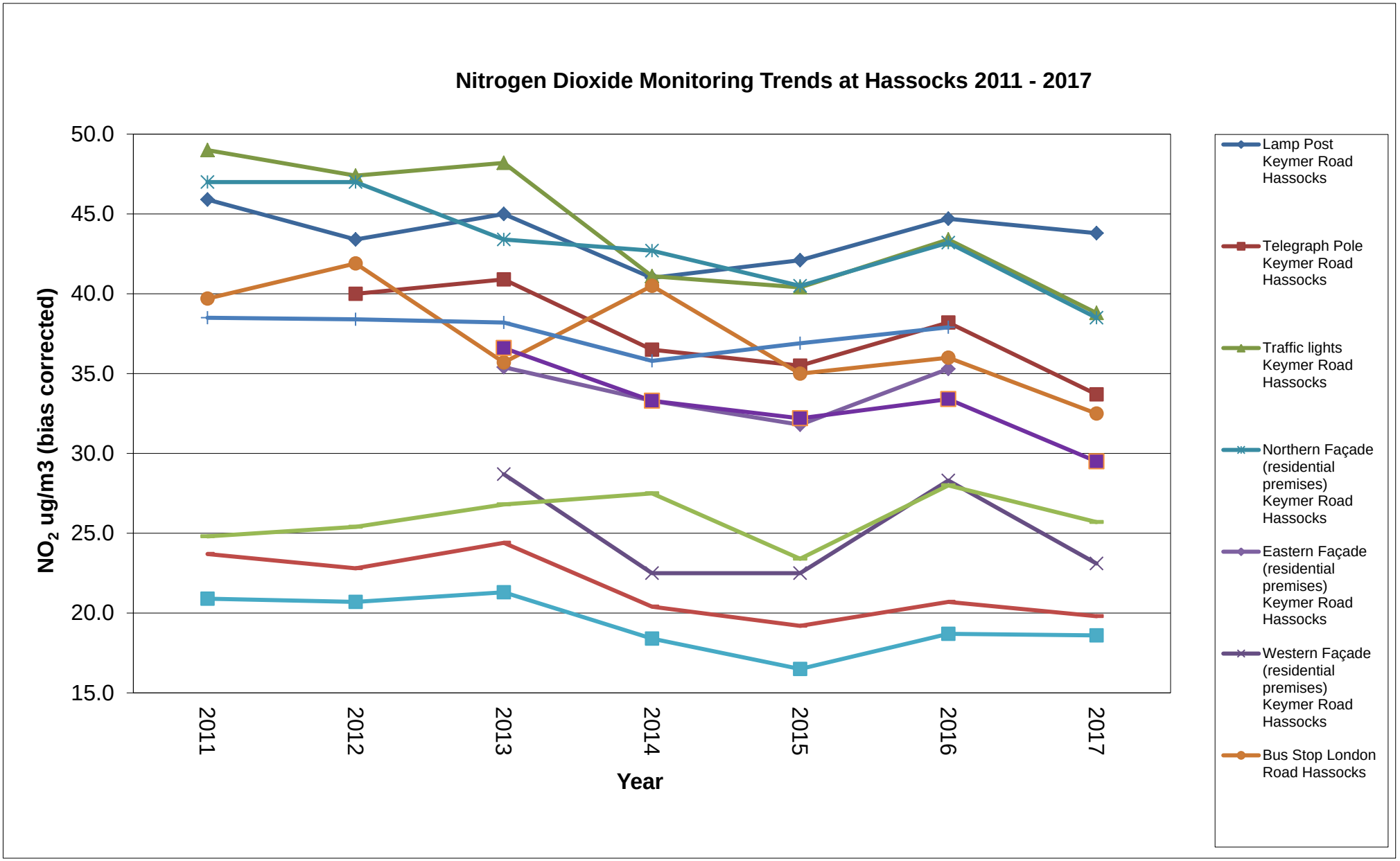
Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

The Bus stop at London Road Hassocks showed a sharp decline in measured concentrations in 2013 and the level in 2016 is virtually the same.

One of the sites is above the above the national air quality objective in 2017 compared to 3 in 2016.

The 2016 level recorded at the location of relevant exposure (MSAQ11 - Over Court, Northern façade, Keymer Road, Hassocks) remained above the objective level at 43.2µg/m³ this has reduced in 2017 to 38.5 µg/m^3.

One site (MSAQ13 Keymer Road) is above the national air quality objective in 2017, though when distance corrected to the nearest receptor is below at 22.3µg/m³.

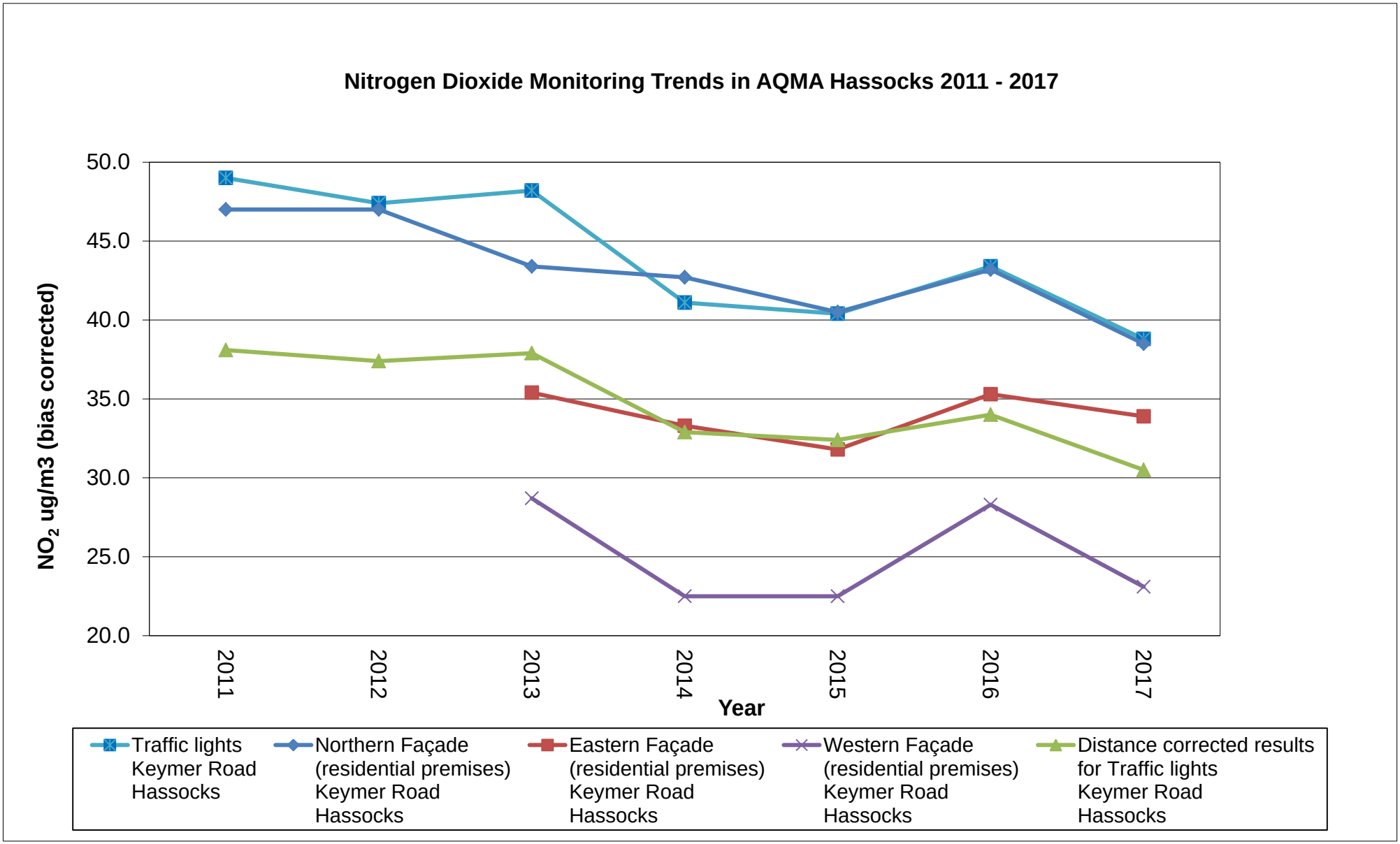

Nitrogen Dioxide Monitoring Trends at Hassocks 2011 - 2017
NO2 ug/m3 (bias corrected)
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
2011
2012
2013
2014
2015
2016
2017
Year
Lamp Post Keymer Road Hassocks
Telegraph Pole Keymer Road Hassocks
Traffic lights Keymer Road Hassocks
Northern Façade (residential premises) Keymer Road Hassocks
Eastern Façade (residential premises) Keymer Road Hassocks
Western Façade (residential premises) Keymer Road Hassocks
Bus Stop London Road Hassocks

Annual mean concentrations (bias corrected) 2011 to 2017 of nitrogen dioxide diffusion tube measurements within the AQMA at Stonepound Hassocks

Year	Traffic lights Keymer Road Hassocks	Distance corrected results for Traffic lights Keymer Road Hassocks (see Appendix C)	Northern Façade (residential premises) Keymer Road Hassocks	Eastern Façade (residential premises) Keymer Road Hassocks	Western Façade (residential premises) Keymer Road Hassocks
2011	**49.0**	38.1	**47.0**		
2012	**47.4**	37.4	**47.0**		
2013	**48.2**	37.9	**43.4**	35.4	28.7
2014	**41.1**	32.9	**42.7**	33.3	22.5
2015	**40.4**	32.4	**40.5**	31.8	22.5
2016	**43.4**	34.0	**43.2**	35.3	28.3
2017	38.8	30.5	38.5	33.9	23.1

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

There has been an overall reduction in the levels recorded at the sites within the AQMA area since it was declared, and in 2017 none of the sites are above the annual mean objective.


Nitrogen Dioxide Monitoring Trends in AQMA Hassocks 2011 - 2017
50.0
45.0
40.0
35.0
30.0
25.0
20.0
NO2 ug/m3 (bias corrected)
2011
2012
2013
2014
2015
2016
2017
Year
Traffic lights Keymer Road Hassocks
Northern Façade (residential premises) Keymer Road Hassocks
Eastern Façade (residential premises) Keymer Road Hassocks
Western Façade (residential premises) Keymer Road Hassocks
Distance corrected results for Traffic lights Keymer Road Hassocks

Appendix B: Full Monthly Diffusion Tube Results for 2017

Table B.1 – NO_2 Monthly Diffusion Tube Results - 2017

Site ID	NO_2 Mean Concentrations (µg/m^3)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
													Raw Data	Bias Adjusted (0.87) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
MSAQ1	36.5	24.9	23.5	24.0	21.1	20.0	18.5	17.5		22.0	28.8	25.7	23.9	20.8	
MSAQ2	34.5	27.0	27.1	23.9	22.1	25.0	21.3	20.6		25.1	28.4	27.0	25.6	22.3	
MSAQ3	48.9	43.3	46.1	45.4		34.6	33.8	32.6		39.8	46.7		**41.2**	35.8	20.6
MSAQ5	47.6	39.7	37.4	39.1	30.6	30.2		28.5		33.3	31.9	37.9	35.6	31.0	19.1
MSAQ6	39.3	33.2	33.5	37.5	24.9	30.9	30.3	34.4		33.0	37.4	33.6	33.5	29.1	
MSAQ7	31.7	33.7	30.1	30.0	22.1	23.2	22.3	24.4		29.2	35.2	15.8	27.1	23.6	
MSAQ9	21.9	11.6	9.4	9.5	9.4	6.3	6.7	5.8		8.3	14.6	9.5	10.3	9.0	
MSAQ10	50.5	43.6	43.5	45.2	44.2	46.6	37.9	40.3		46.6	48.9	43.0	**44.6**	38.8	30.5
MSAQ11	49.5	45.0	47.8	45.6	39.8	49.6	40.9	39.8		43.2	45.0	41.4	**44.3**	38.5	
MSAQ12	31.5	40.3		42.1	36.5	46.6	36.0	36.0		40.3	39.6	37.9	38.7	33.7	
MSAQ13	62.3		51.4	49.5	42.7	53.5	39.7	43.5			64.0	47.4	**50.4**	**43.8**	22.3
MSAQ14	52.6	40.2	37.2	34.2	35.6	41.6	37.2	34.3		35.3	32.0	30.9	37.4	32.5	
MSAQ15	45.2	42.7	42.8	41.3	38.3	44.2	37.8	38.6		37.6	37.3	38.2	**40.4**	35.1	26.0
MSAQ16	29.1	24.1	22.8	23.4	20.2	21.7	17.5	19.6		23.7	25.0	23.8	22.8	19.8	
MSAQ17	36.8	29.0	29.1	26.3	26.9	28.4	30.1	34.2		28.1	28.7	27.3	29.5	25.7	18.4
MSAQ18	39.9	38.8	36.1	36.7	30.5	35.5	18.4	22.2		36.5	40.5	37.5	33.9	29.5	21.7

MSAQ19	36.1	23.1	22.6	18.3	15.2	18.5	13.5			20.1	23.3	23.0	21.4	18.6	13.8
MSAQ20	18.1	13.7	11.4	7.8	7.5	8.7	5.0	6.9			12.8	12.4	10.4	9.0	
MSAQ21	49.6	32.1	34.0	34.0	34.2	32.5	24.0	35.0		28.7	36.0	33.2	33.9	29.5	28.4
MSAQ22	40.5	36.3	34.6	31.0	25.7	32.5	22.9	24.0		30.0	37.5	38.4	32.1	27.9	23.6
MSAQ23	43.0	40.1	41.4	40.3	34.8	40.9	33.3	34.6		37.6	42.0	41.3	39.0	33.9	
MSAQ24	36.1	26.7	27.7	25.8	24.0	25.4	15.4	20.5		25.9	31.5	32.7	26.5	23.1	
MSAQ25	41.3	34.2	33.2	30.2	30.3	33.3	26.4	29.4		31.9	37.5	36.1	33.1	28.8	
MSAQ26	37.5	30.1	26.3	26.6	21.9	26.6	20.0	21.6		26.8	34.2	30.7	27.5	23.9	22.7
MSAQ27	41.8	22.6	25.2	21.5	22.3	23.3	16.8	17.9		22.2	24.6	20.9	23.6	20.5	17.5

☒ **National bias adjustment factor used**

☒ **Where applicable, data has been distance corrected for relevant exposure**

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined.**

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

(2) Distance corrected to nearest relevant public exposure.

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

Supporting Technical Information

Distance Correction for monitoring sites

Distance correction is an important point to consider If monitoring sites are not representative of public exposure (e.g. if located at roadside or kerbside sites where the façades of nearest properties are set back further from the road).

The monitored result at that site can be distance corrected to estimate the level at the façade of a nearby building.

The distance corrected results for such sites monitored are shown in Appendix B.

Below are the spreadsheets used to make the calculations.

The NO_2 fall off with distance from the roads calculator v4.1 is available at:-

https://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html

MSAQ3 London Road East Grinstead 2017

Enter data into the red cells

Step 1	How far from the KERB was your measurement made (in metres)?	0.5	metres
Step 2	How far from the KERB is your receptor (in metres)?	18.5	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	12	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	35.8	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	20.6	µg/m^3

MSAQ5 Lewes Road East Grinstead 2017

Enter data into the red cells

Step 1	How far from the KERB was your measurement made (in metres)?	1.5	metres
Step 2	How far from the KERB is your receptor (in metres)?	17.5	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	9	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	31	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	19.1	µg/m^3

MSAQ10 Stonepound Traffic Lights Hassocks 2017

Enter data into the red cells

Step 1	How far from the KERB was your measurement made (in metres)?	1.5	metres
Step 2	How far from the KERB is your receptor (in metres)?	5.5	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	9.85	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	38.8	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	30.5	µg/m^3

MSAQ10 Stonepound Traffic Lights Hassocks 2016

Enter data into the red cells

Step 1	How far from the KERB was your measurement made (in metres)?	1.5	metres
Step 2	How far from the KERB is your receptor (in metres)?	5.5	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	10.53	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	43.4	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	34.0	µg/m^3

MSAQ10 Stonepound Traffic Lights Hassocks 2015

This calculator allows you to predict the annual mean NO_2 concentration for a location ("receptor") that is close to a monitoring site, but nearer or further the kerb than the monitor. The next sheet shows your results on a graph.

Enter data into the yellow cells

Step 1	How far from the KERB was your measurement made (in metres)?	(Note 1)	1.5	metres
Step 2	How far from the KERB is your receptor (in metres)?	(Note 1)	5.5	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	(Note 2)	12.3	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	(Note 2)	40.4	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	(Note 3)	32.4	µg/m^3

MSAQ10 Stonepound Traffic Lights Hassocks 2014

This calculator allows you to predict the annual mean NO_2 concentration for a location ("receptor") that is close to a monitoring site, but nearer or further the kerb than the moni
The next sheet shows your results on a graph.

Enter data into the yellow cells

Step 1	How far from the KERB was your measurement made (in metres)?	(Note 1)	1.5	metres
Step 2	How far from the KERB is your receptor (in metres)?	(Note 1)	5.5	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	(Note 2)	12.2	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	(Note 2)	41.1	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	(Note 3)	32.9	µg/m^3

MSAQ10 Stonepound Traffic Lights Hassocks 2013

This calculator allows you to predict the annual mean NO_2 concentration for a location ("receptor") that is close to a monitoring site, but nearer or further the kerb than the moni
The next sheet shows your results on a graph.

Enter data into the yellow cells

Step 1	How far from the KERB was your measurement made (in metres)?	(Note 1)	1.5	metres
Step 2	How far from the KERB is your receptor (in metres)?	(Note 1)	5.5	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	(Note 2)	12.2	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	(Note 2)	48.2	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	(Note 3)	37.9	µg/m^3

MSAQ10 Stonepound Traffic Lights Hassocks 2012

This calculator allows you to predict the annual mean NO_2 concentration for a location ("receptor") that is close to a monitoring site, but nearer or further the kerb than the moni
The next sheet shows your results on a graph.

Enter data into the yellow cells

Step 1	How far from the KERB was your measurement made (in metres)?	(Note 1)	1.5	metres
Step 2	How far from the KERB is your receptor (in metres)?	(Note 1)	5.5	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	(Note 2)	12.3	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	(Note 2)	47.4	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	(Note 3)	37.4	µg/m^3

MSAQ10 Stonepound Traffic Lights Hassocks 2011

This calculator allows you to predict the annual mean NO_2 concentration for a location ("receptor") that is close to a monitoring site, but nearer or further the kerb than the monitor. The next sheet shows your results on a graph.

Enter data into the yellow cells

Step 1	How far from the KERB was your measurement made (in metres)?	(Note 1)	1.5	metres
Step 2	How far from the KERB is your receptor (in metres)?	(Note 1)	5.5	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	(Note 2)	13.2	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	(Note 2)	48.1	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	(Note 3)	38.1	µg/m^3

MSAQ13 Lamp Post Keymer Road Hassocks 2017

Enter data into the red cells

Step 1	How far from the KERB was your measurement made (in metres)?	0.85	metres
Step 2	How far from the KERB is your receptor (in metres)?	19.8	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	8.8	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	43.8	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	22.3	µg/m^3

MSAQ15 Traffic Light sign London Road Hassocks 2017

Enter data into the red cells

Step 1	How far from the KERB was your measurement made (in metres)?	1.6	metres
Step 2	How far from the KERB is your receptor (in metres)?	8.1	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	9.85	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	35.1	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	26.0	µg/m^3

MSAQ17 Lamp Post Brighton Road Hassocks 2017

Enter data into the red cells

Step 1	How far from the KERB was your measurement made (in metres)?	1.25	metres
Step 2	How far from the KERB is your receptor (in metres)?	11.25	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	9.85	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	25.7	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	18.4	µg/m^3

MSAQ18 Bus Stop Brighton Road Hassocks 2017

Enter data into the red cells

Step 1	How far from the KERB was your measurement made (in metres)?	2	metres
Step 2	How far from the KERB is your receptor (in metres)?	11	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	9.85	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	29.5	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	21.7	µg/m^3

MSAQ19 Lamp Post Hurst Road Hassocks 2017

Enter data into the red cells

Step 1	How far from the KERB was your measurement made (in metres)?	1.3	metres
Step 2	How far from the KERB is your receptor (in metres)?	14.5	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	9.15	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	18.6	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	13.8	µg/m^3

MSAQ21 London Road Burgess Hill 2017

Enter data into the red cells

Step 1	How far from the KERB was your measurement made (in metres)?	1.9	metres
Step 2	How far from the KERB is your receptor (in metres)?	2.5	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	12.18	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	29.5	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	28.4	µg/m^3

MSAQ22 Leylands Road Burgess Hill 2017

Enter data into the red cells

Step 1	How far from the KERB was your measurement made (in metres)?	1.5	metres
Step 2	How far from the KERB is your receptor (in metres)?	4.5	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	9.9	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	27.9	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	23.6	µg/m^3

MSAQ26 High Street Hurstpierpoint 2017

Enter data into the red cells

Step 1	How far from the KERB was your measurement made (in metres)?	2.1	metres
Step 2	How far from the KERB is your receptor (in metres)?	3	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	10.24	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	23.9	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	22.7	µg/m^3

MSAQ27 London Road Hickstead 2017

Enter data into the red cells

Step 1	How far from the KERB was your measurement made (in metres)?	3.8	metres
Step 2	How far from the KERB is your receptor (in metres)?	15	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	12.64	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	20.5	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	17.5	µg/m^3

Air Quality Monitoring Data QA/QC

Diffusion Tube Bias Adjustment Factors

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

The bias adjustment factor used to correct the diffusion tube monitoring results is 0.87 taken from the database of diffusion tube bias factors spreadsheet (v06_18) available at http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html.

QA/QC of Diffusion Tube Monitoring

Results for the nitrogen dioxide diffusion colocation studies available at http://laqm.defra.gov.uk/diffusion-tubes/precision.html show Gradko laboratory had good precision.

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

Figure 1 Air Quality Monitoring Sites 2017

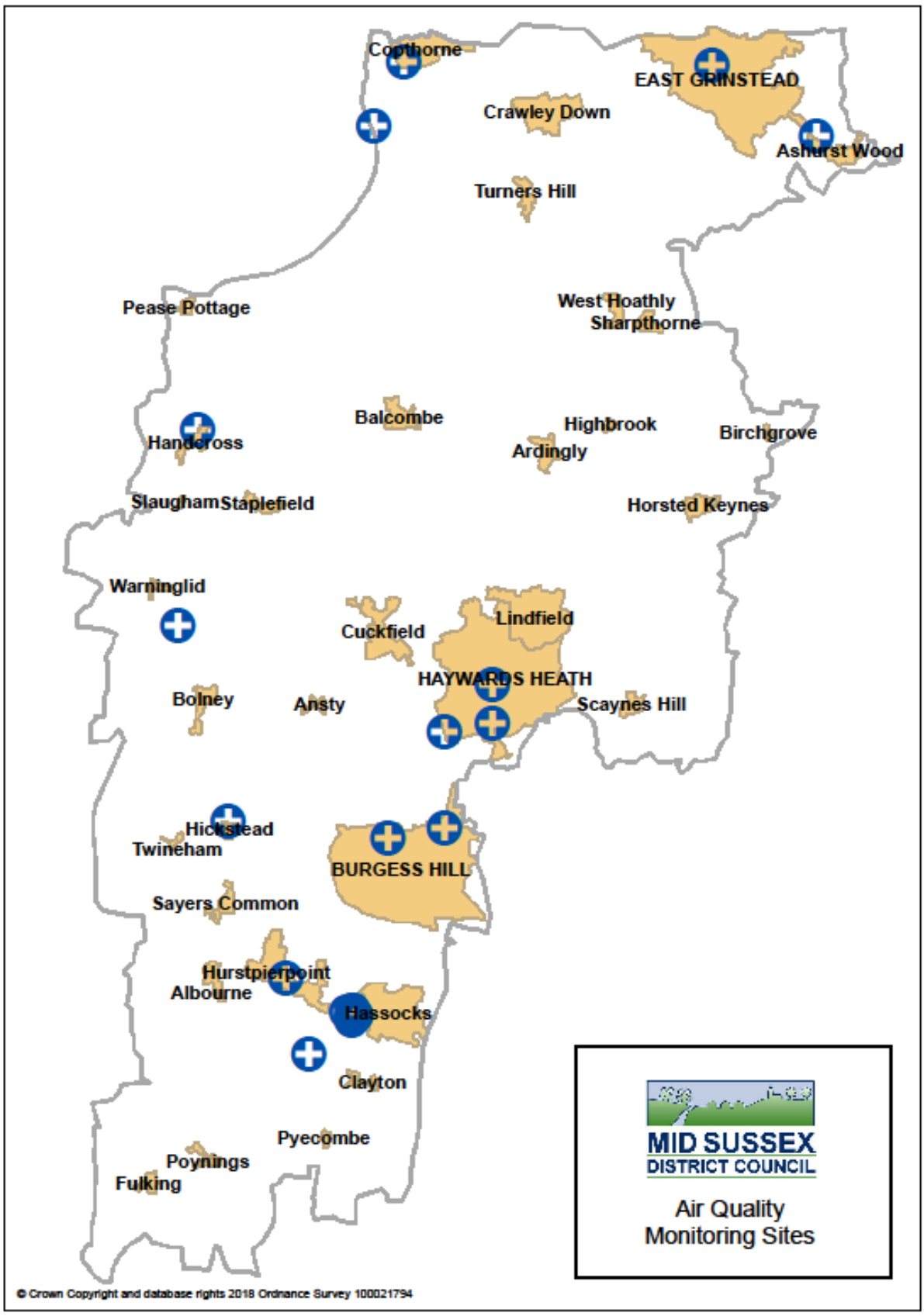


Figure 2 Air Quality Management Area Hassocks

Figure 3 MSAQ1 South Road, Haywards Heath, adjacent to The Cook Shop

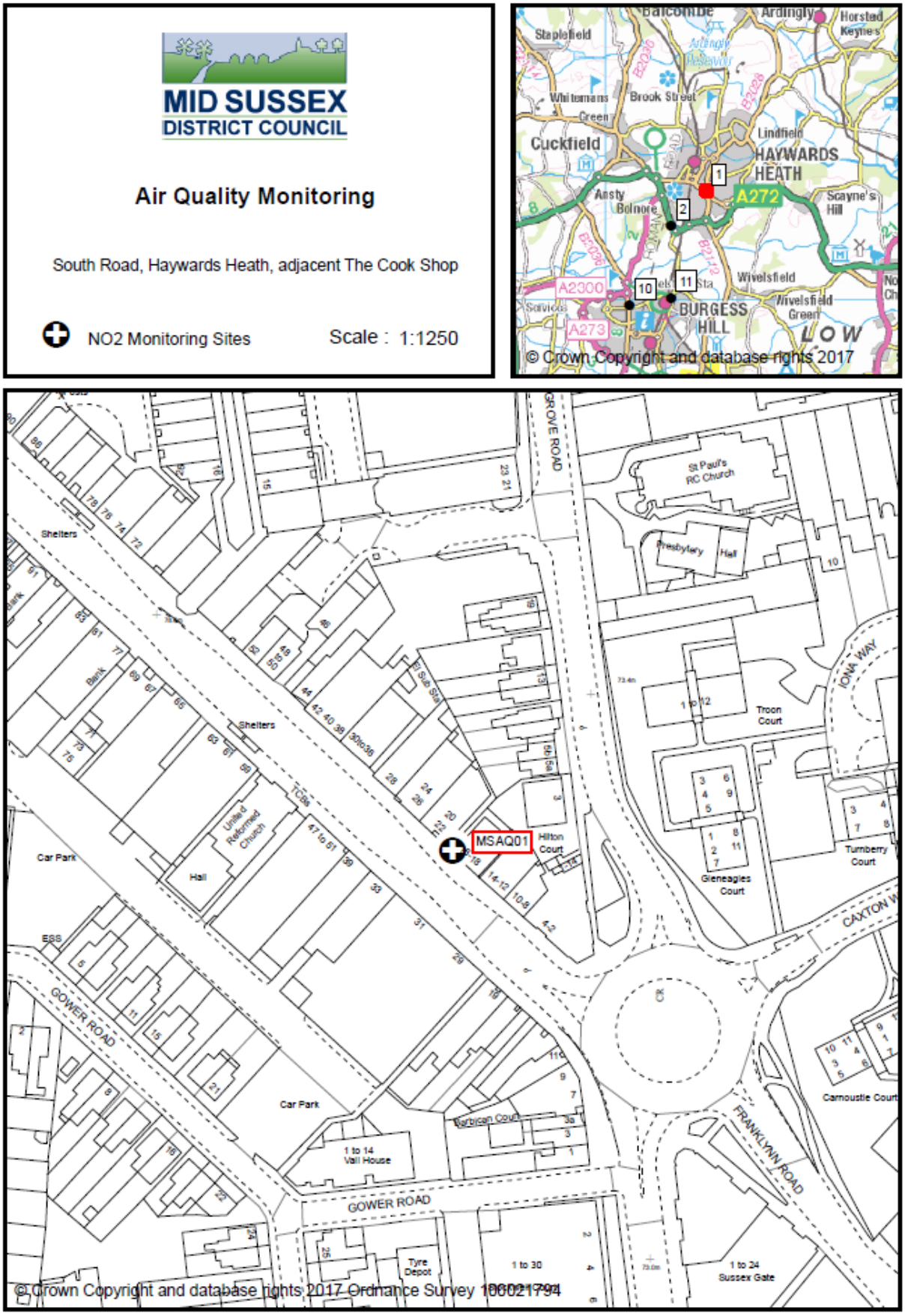


Figure 4 MSAQ2 Lower Village roundabout, Traunstein Way, Haywards Heath

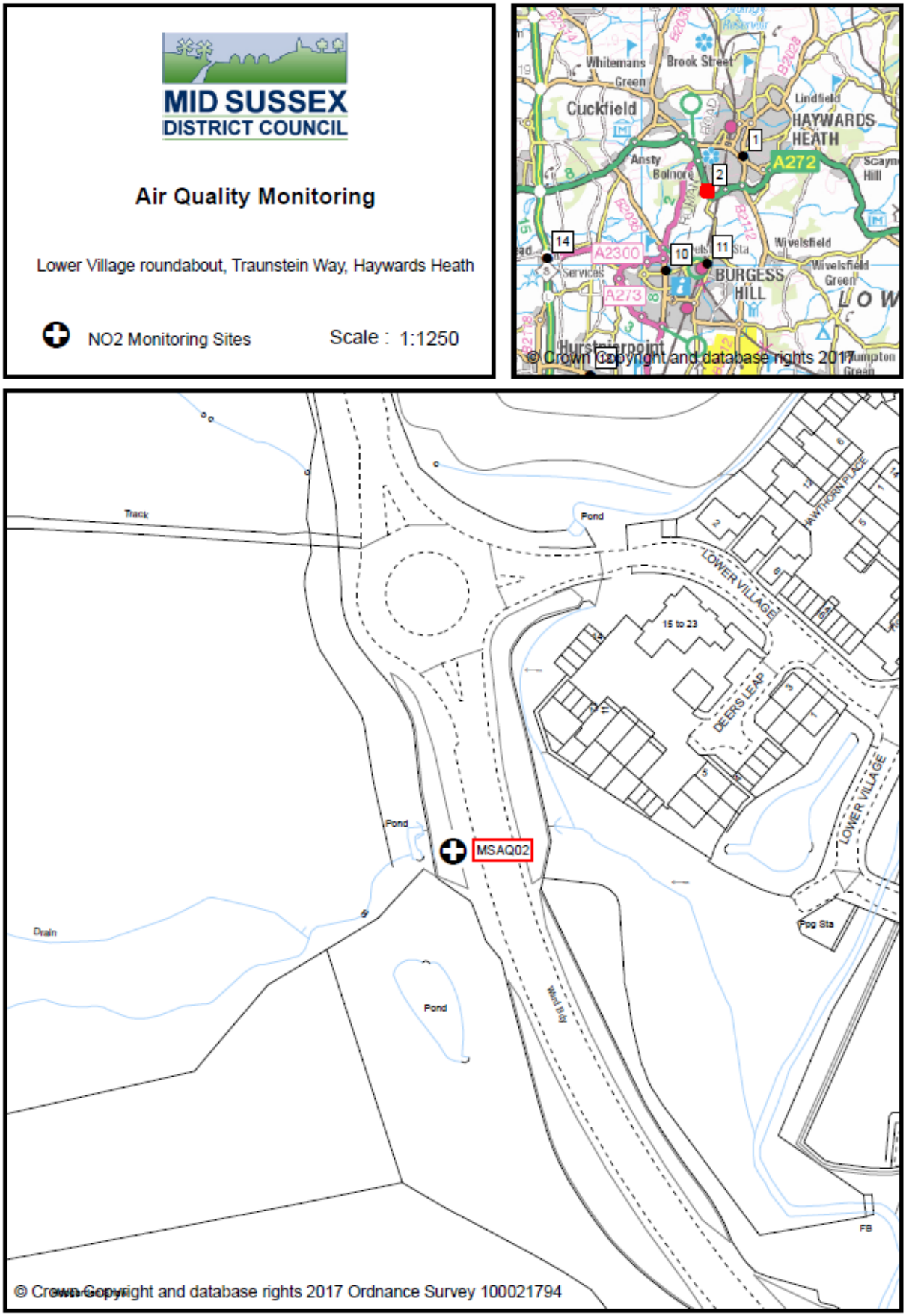


Figure 5 MSAQ3 London Road, East Grinstead, adjacent to Southwick House

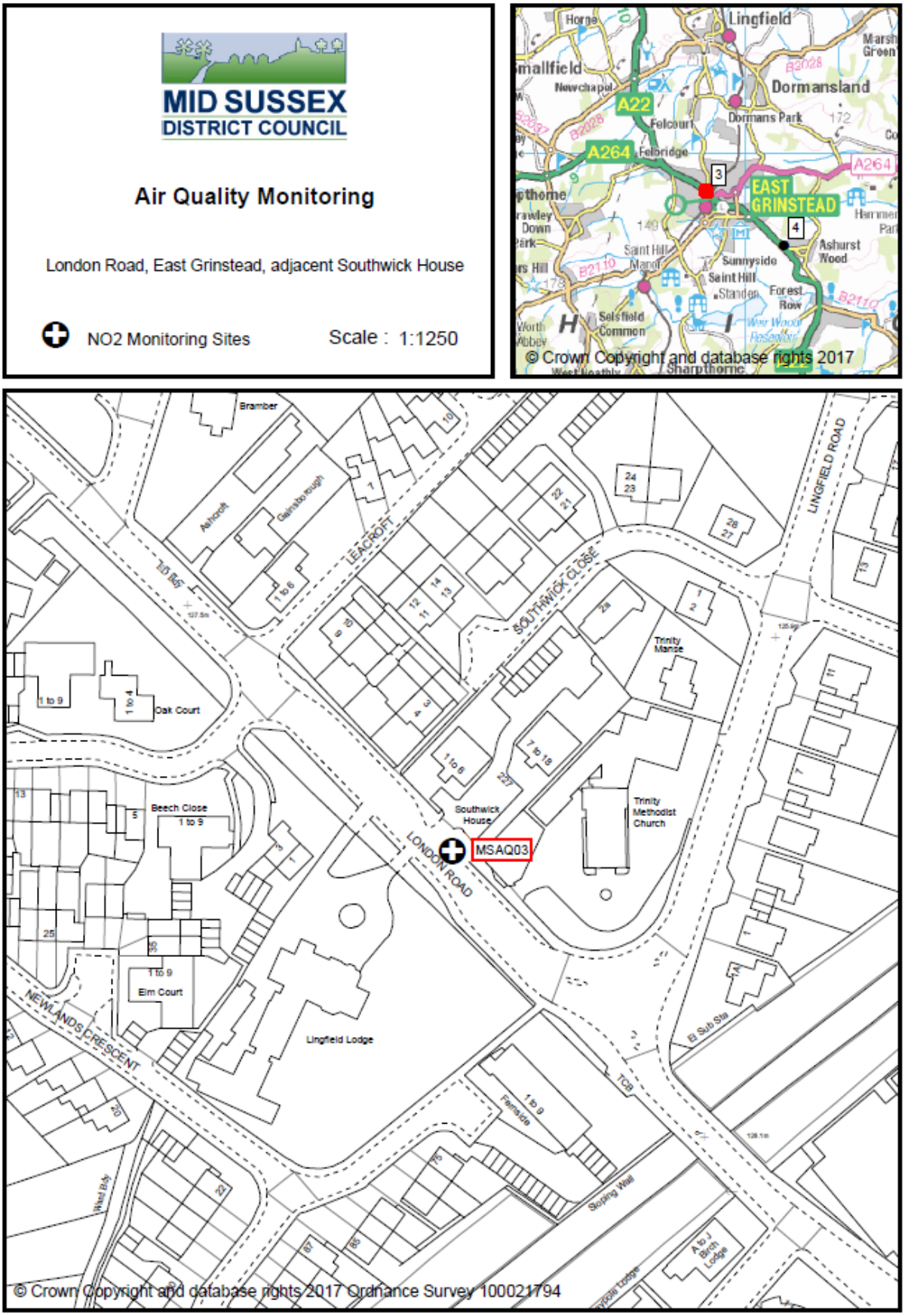


Figure 6 MSAQ5 Lewes Road, East Grinstead

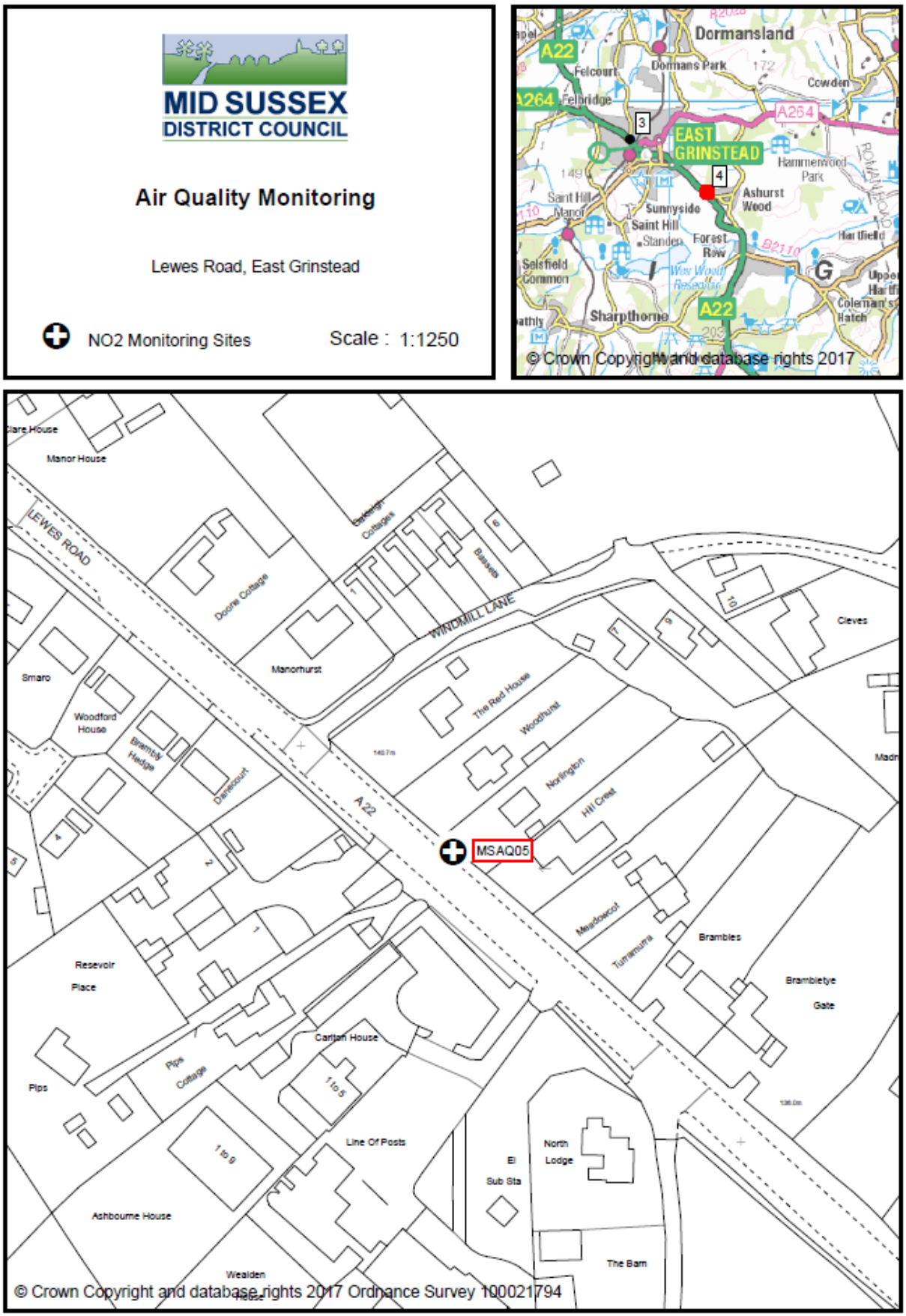


Figure 7 MSAQ6 Smugglers End, Handcross

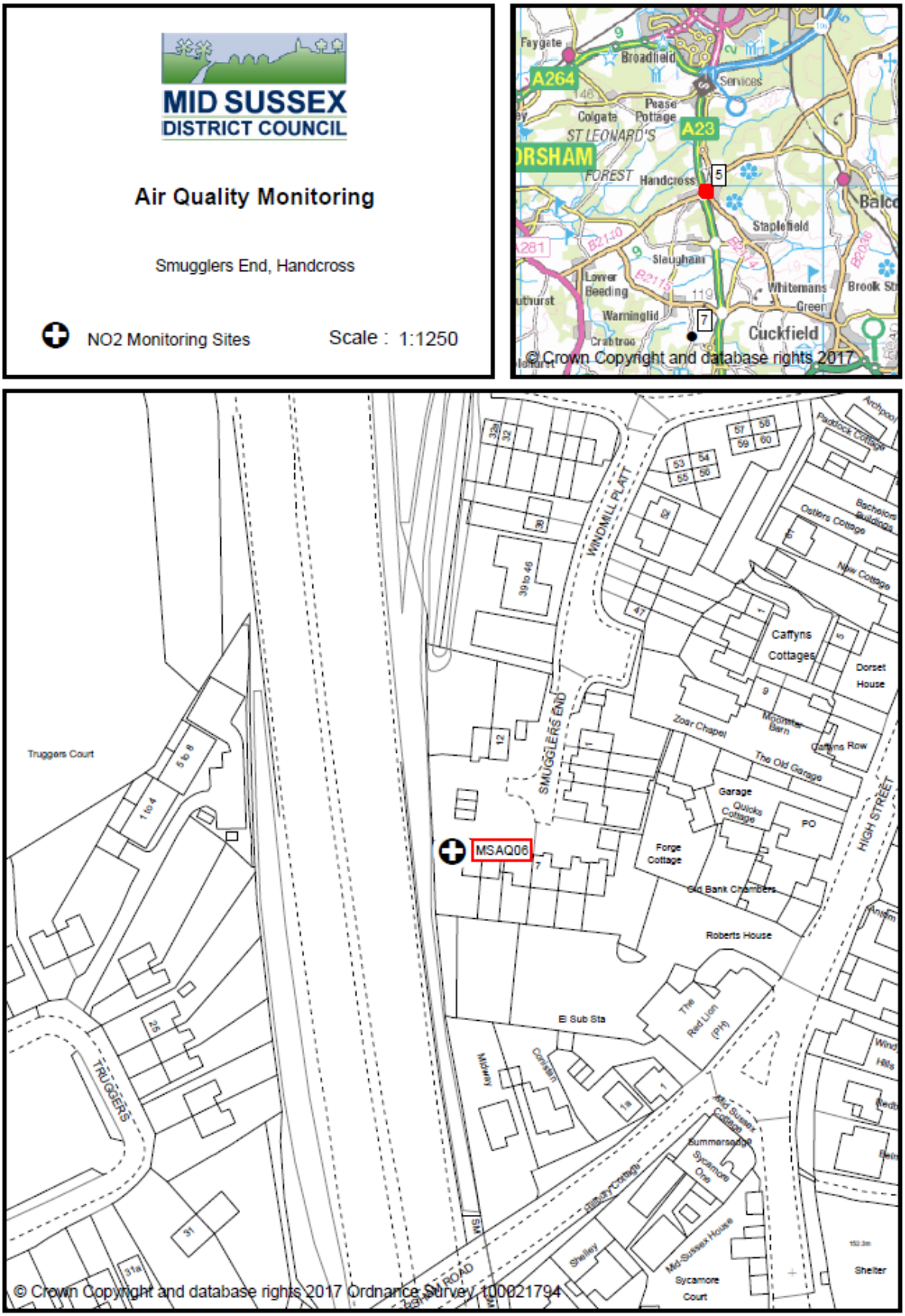


Figure 8 MSAQ7 Crabbet Park, Worth

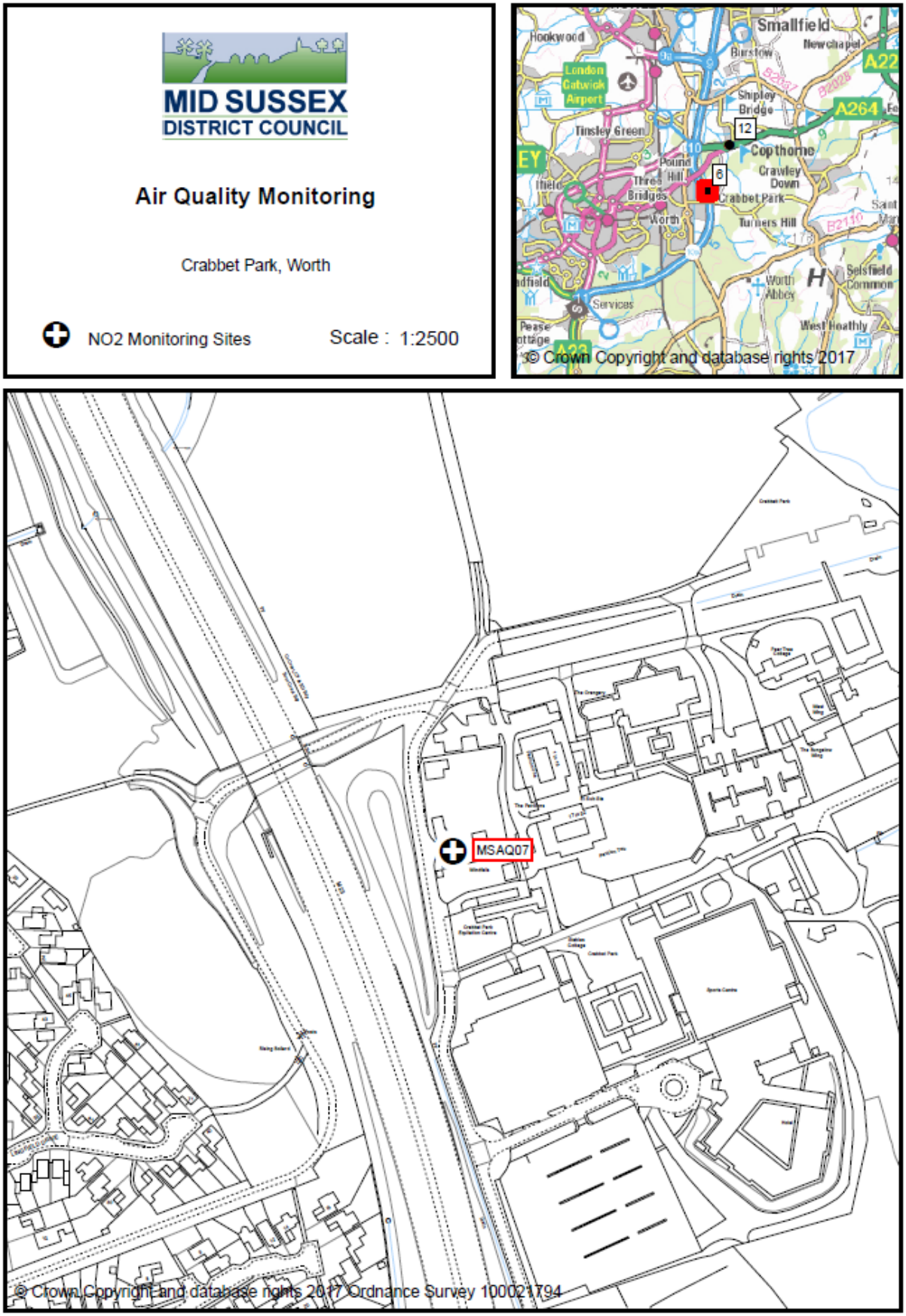


Figure 9 MSAQ09 Water Tower, Colwood Lane, Warninglid

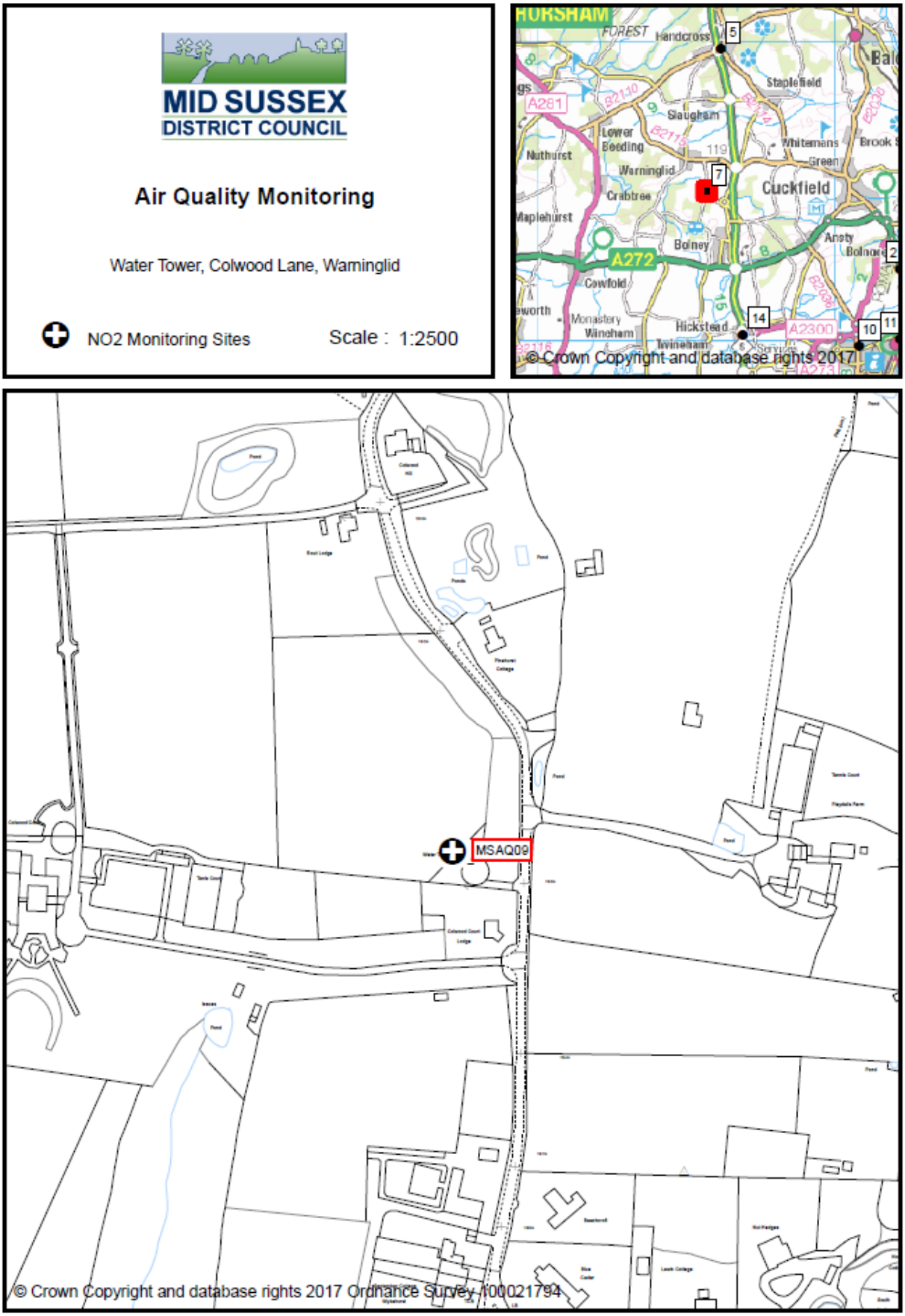


Figure 10 MSAQ10 to MSAQ19 and MSAQ23 and MSAQ24 Stonepound Crossroads, Keymer Road, Hassocks

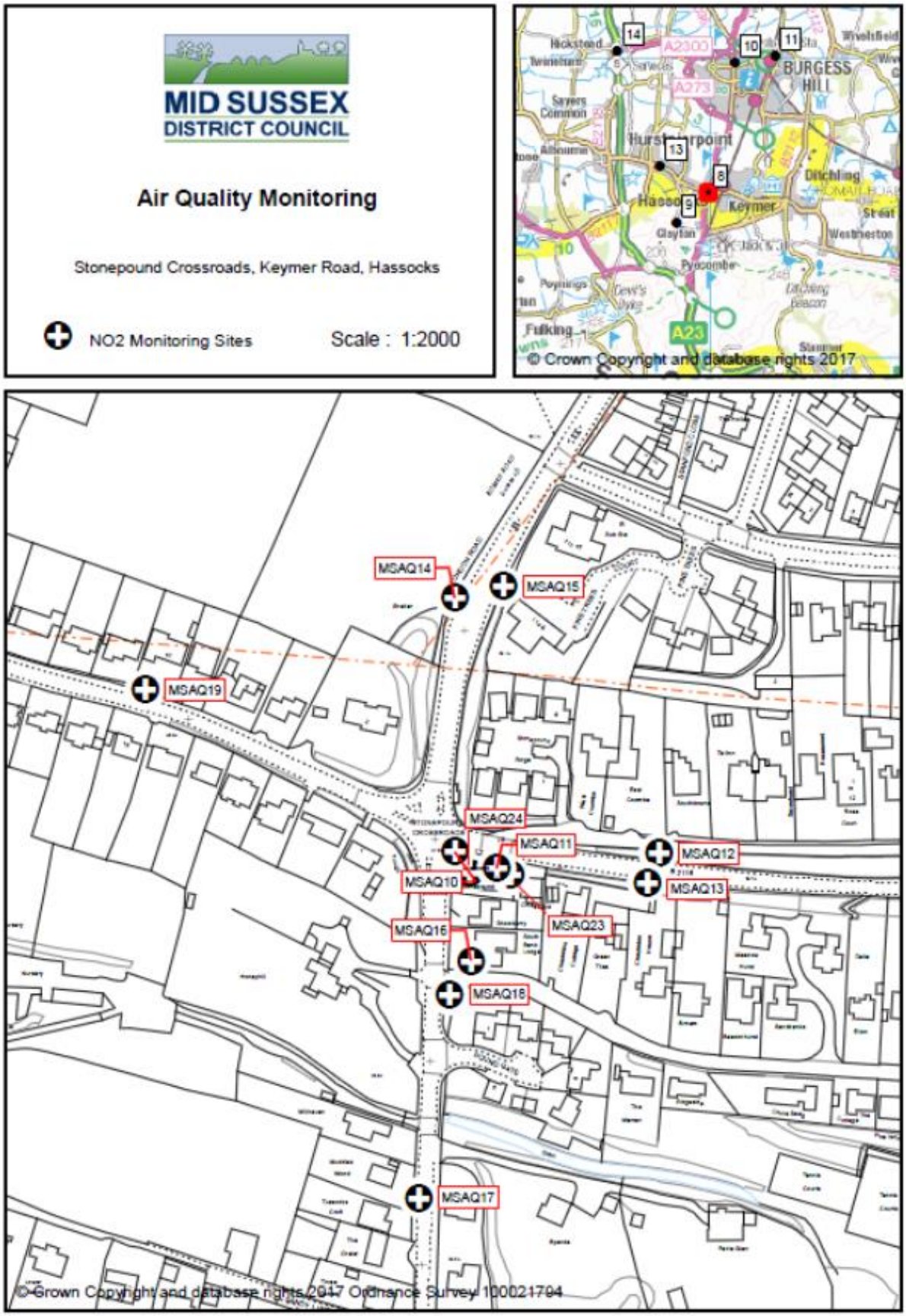


Figure 11 NO_2 Monitoring sites within AQMA

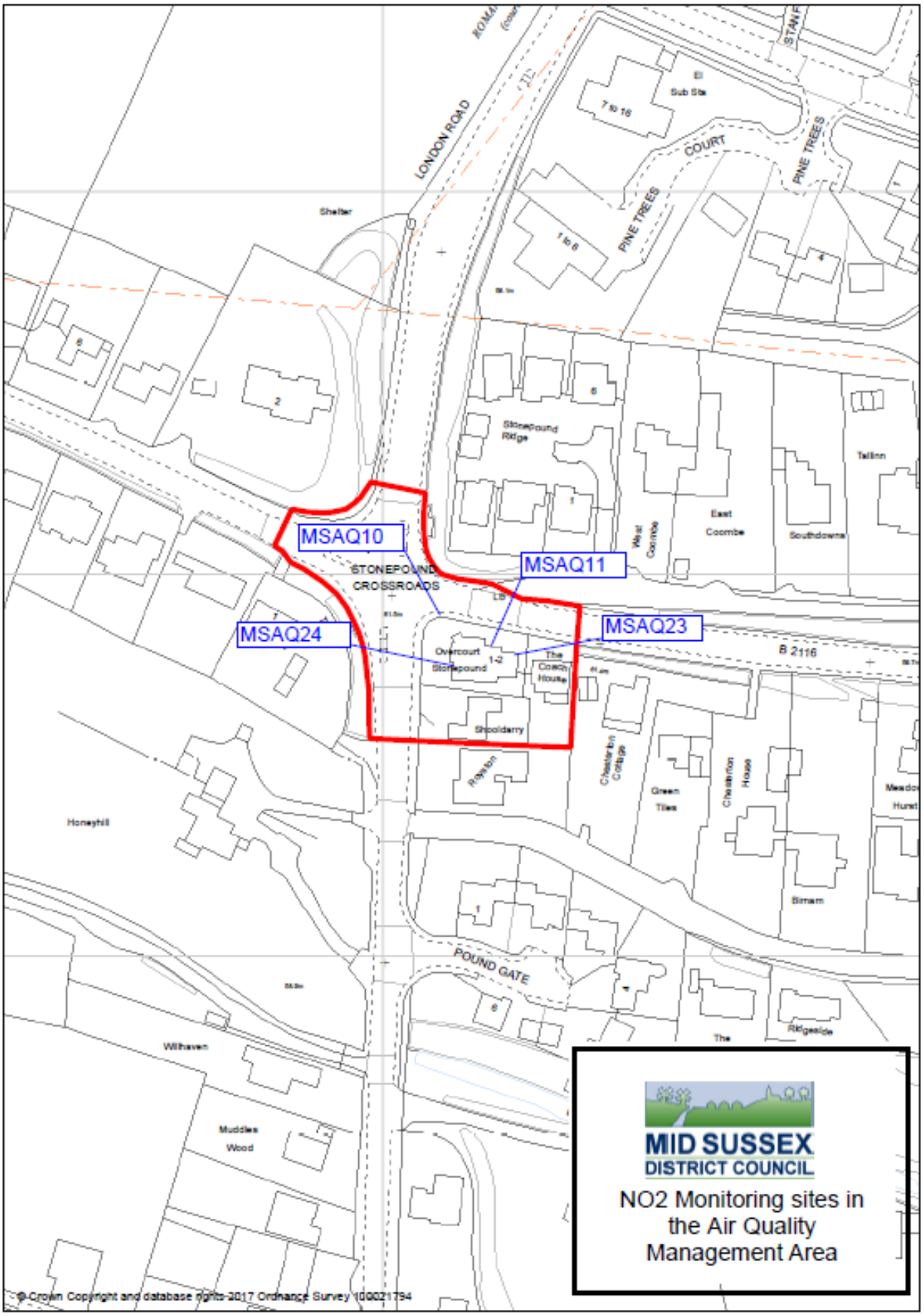


Figure 12 MSAQ20 New Way Lane, Hurstpierpoint

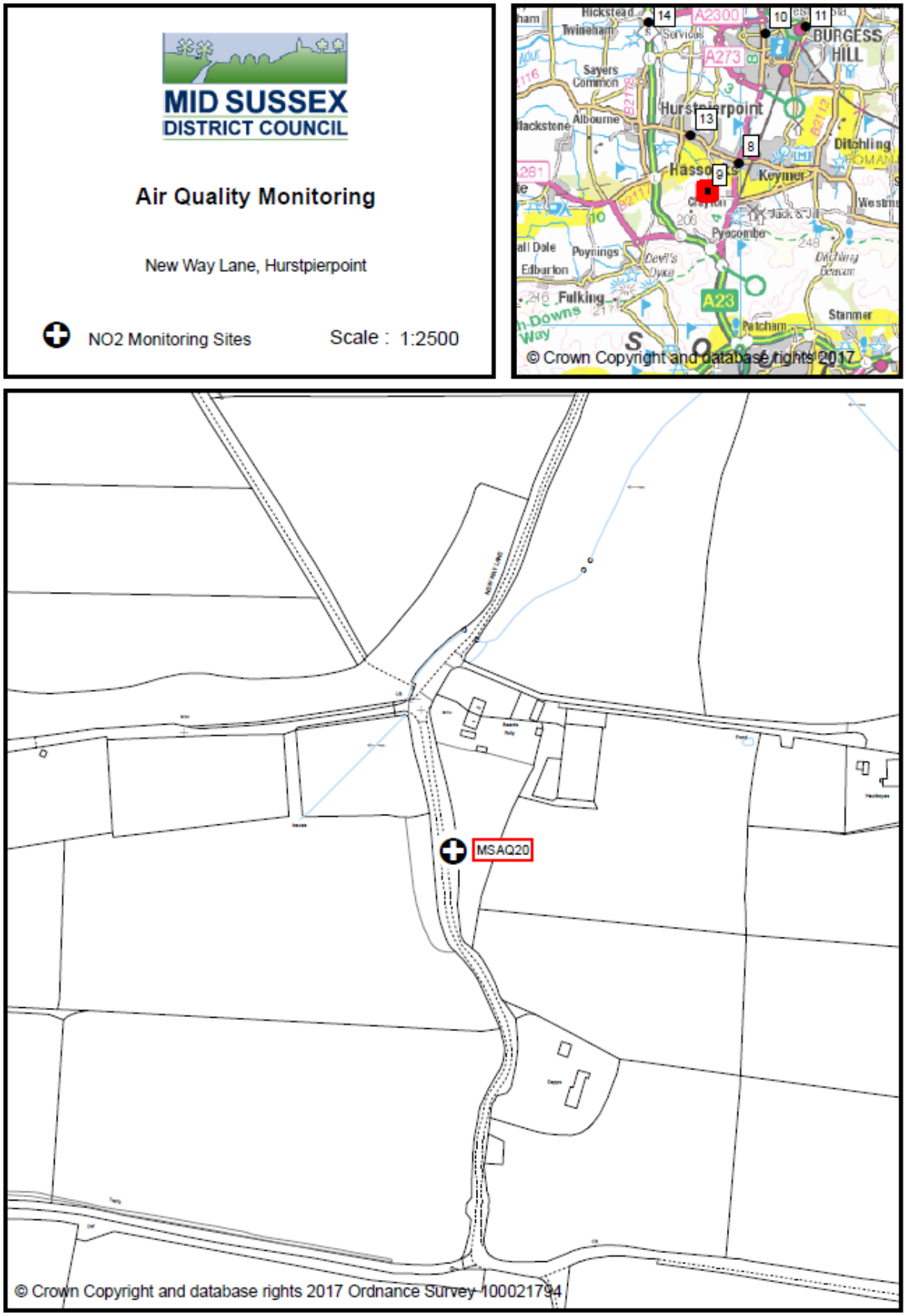


Figure 13 MSAQ21 86-88 London Road, Burgess Hill

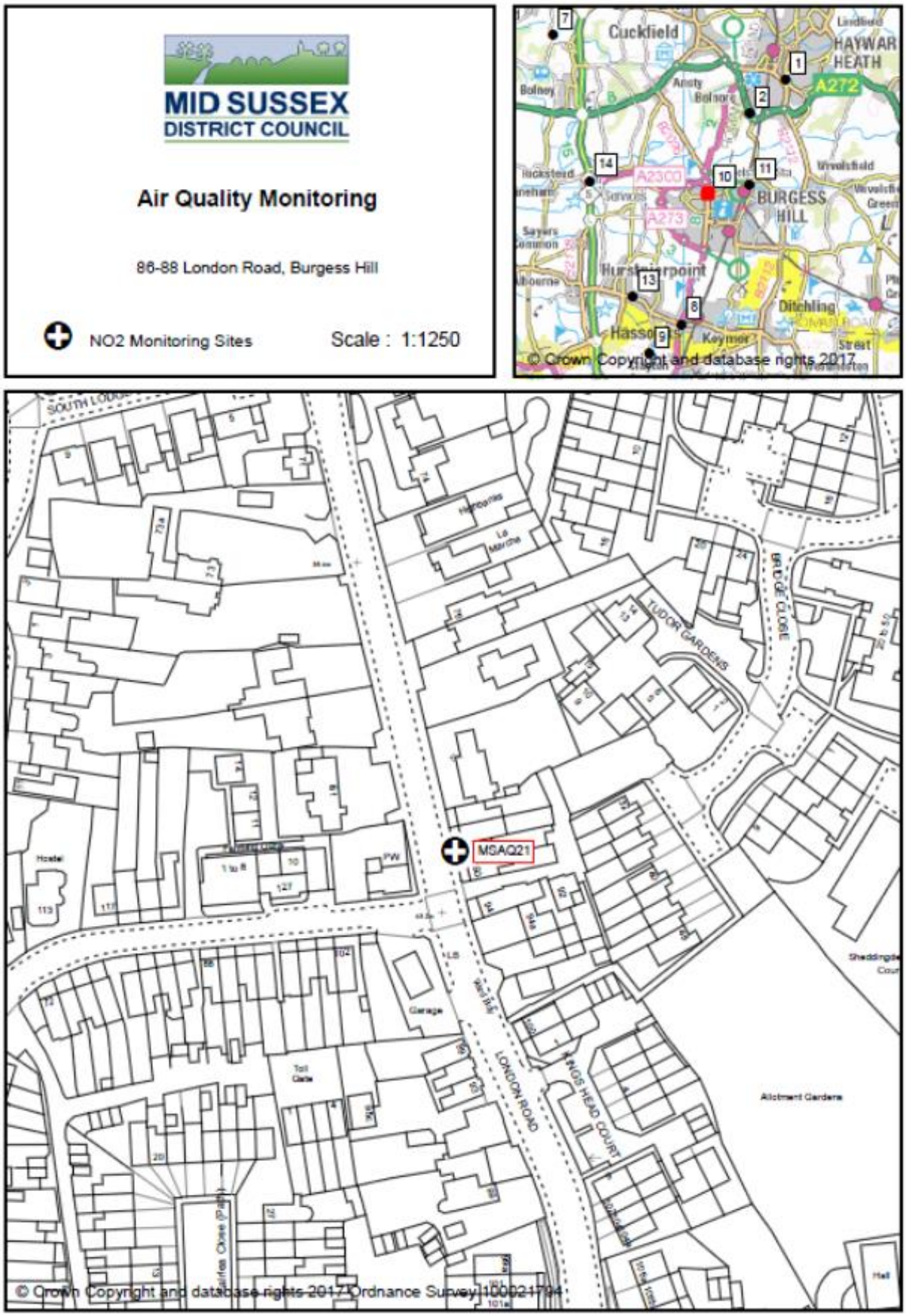


Figure 14 MSAQ22 26, Leylands Road, Burgess Hill

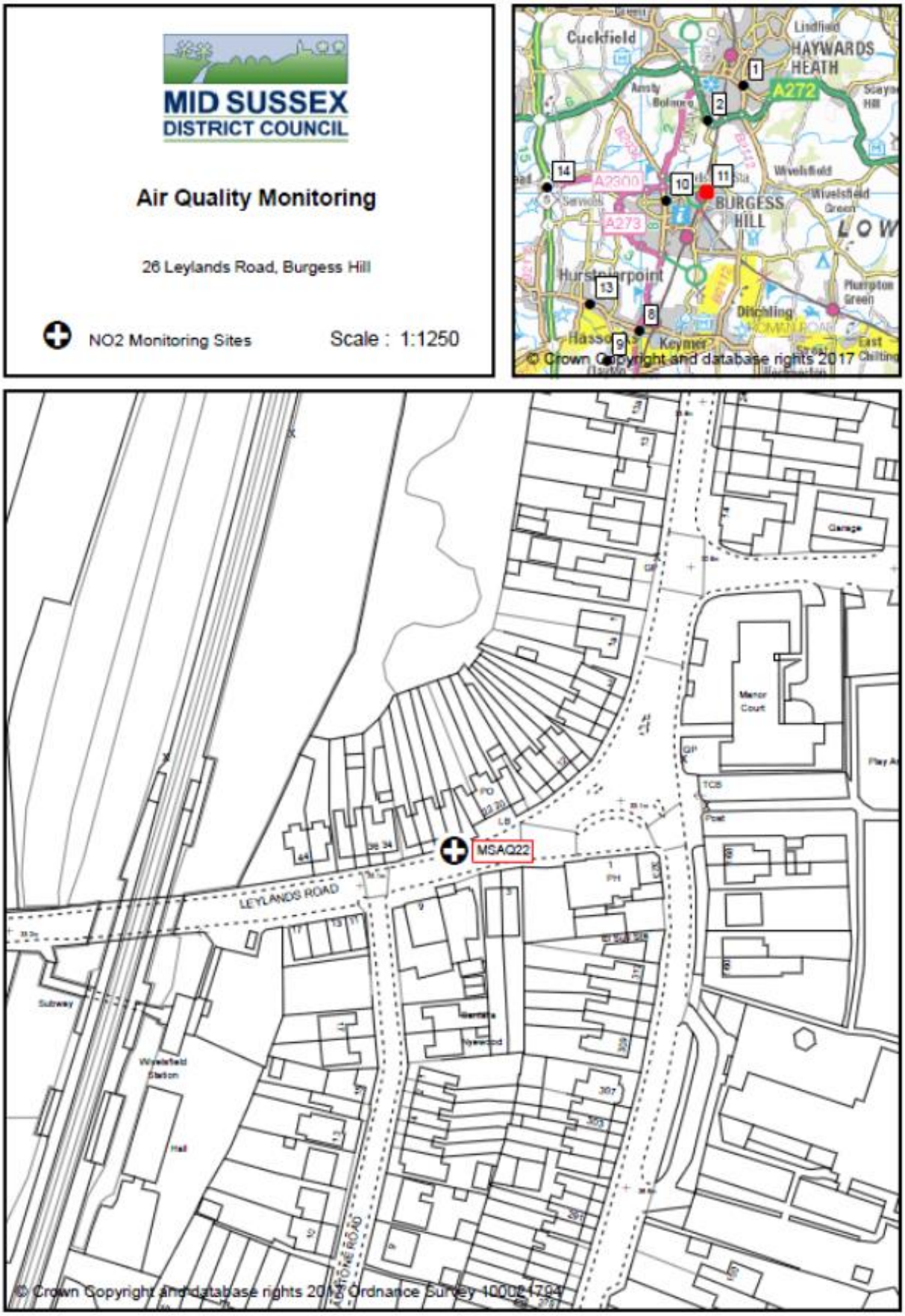


Figure 15 MSAQ25 Erica Way, Copthorne

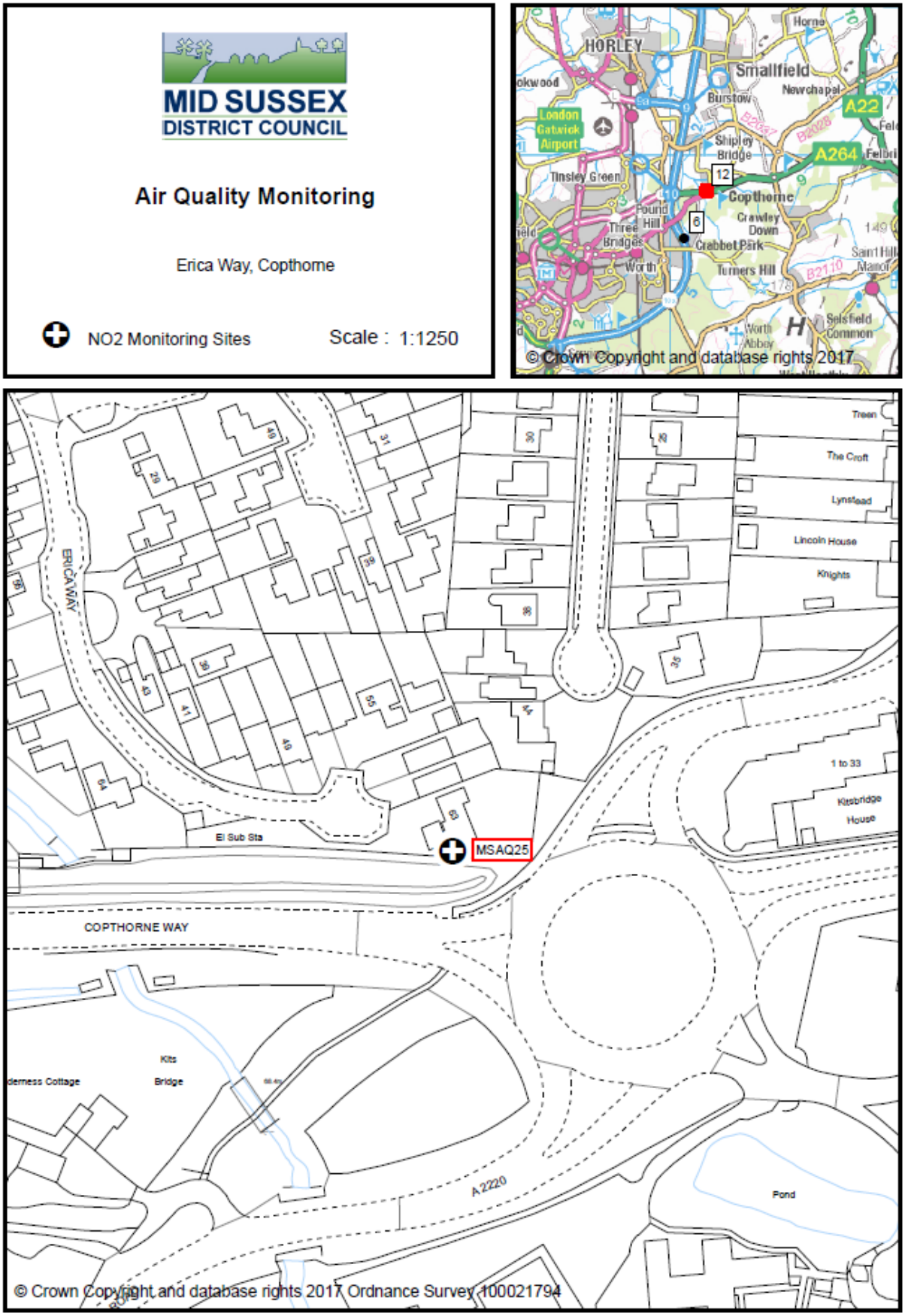


Figure 16 MSAQ26 Lamp Post 14, High Street, Hurstpierpoint

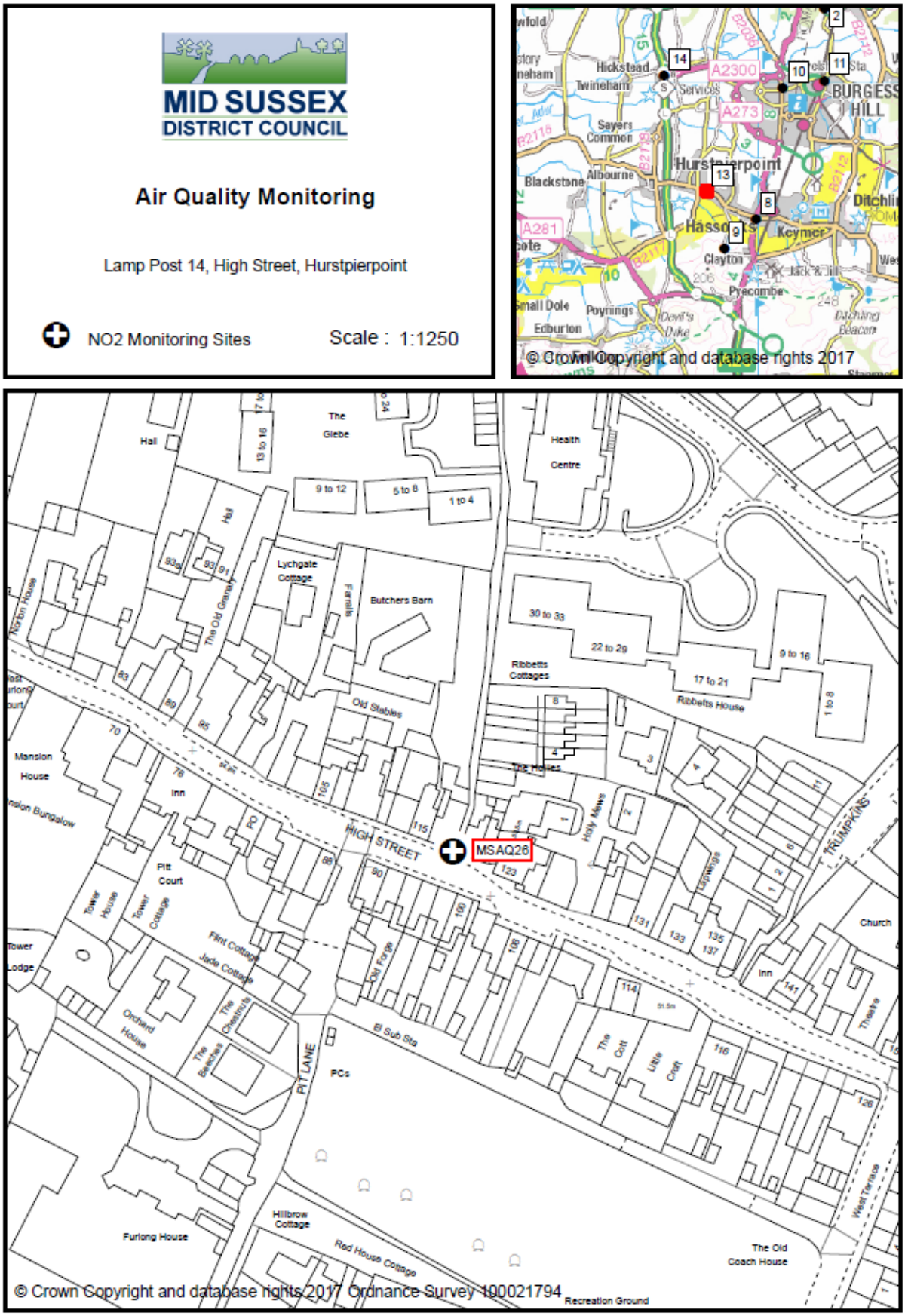
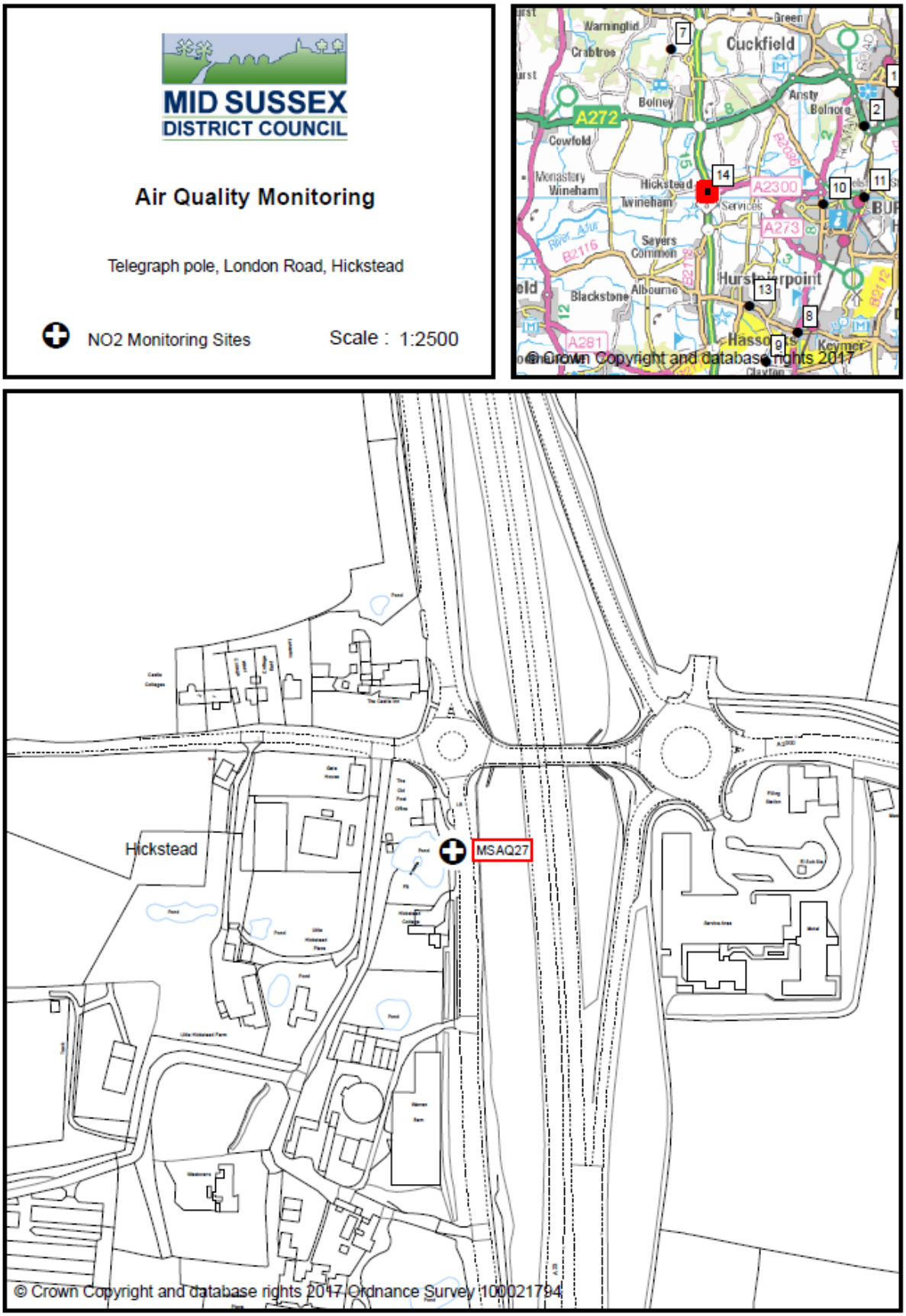


Figure 17 MSAQ27 Telegraph pole, London Road, Hickstead



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England

Pollutant	Air Quality Objective[4]	
	Concentration	Measured as
Nitrogen Dioxide (NO_2)	200 µg/m^3 not to be exceeded more than 18 times a year	1-hour mean
	40 µg/m^3	Annual mean
Particulate Matter (PM_{10})	50 µg/m^3, not to be exceeded more than 35 times a year	24-hour mean
	40 µg/m^3	Annual mean
Sulphur Dioxide (SO_2)	350 µg/m^3, not to be exceeded more than 24 times a year	1-hour mean
	125 µg/m^3, not to be exceeded more than 3 times a year	24-hour mean
	266 µg/m^3, not to be exceeded more than 35 times a year	15-minute mean

[4] The units are in microgrammes of pollutant per cubic metre of air (µg/m^3).

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Air quality Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
EU	European Union
LAQM	Local Air Quality Management
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO_2	Sulphur Dioxide

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