2016 Air Quality Annual Status Report (ASR)

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

July 2016

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Executive Summary: Air Quality in Our Area

Air pollution is associated with a number of adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children and older people, and those with heart and lung conditions.

Sussex local authorities continually review air quality across the region to identify any breaches of air quality standards. This has resulted in the declaration of a number of Air Quality Management Areas (AQMAs) across different local authorities in Sussex.

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. In March 2012 the Council declared it to be an Air Quality Management Area.

Road traffic exhaust emissions are the major source of pollution within the AQMA. Excessive levels of NO_2 are due to the volume of road traffic which queues at the traffic lights. The Council have drawn up an Air Quality Action Plan (AQAP) in conjunction with the Sussex Air Quality Partnership (Sussex-air) and West Sussex County Council.

The AQAP focuses on a range of measures designed to limit the exceedance of the NO_2 air quality objective. These include:

- Ensuring traffic light sequencing is operating at optimum efficiency
- Signage and advertising to encourage use of the A2300 as alternative route
- Future widening of the A2300
- “Cut engine, cut pollution” signs erected approaching each arm of the crossroads
- Travelwise 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
- MSDC's District Plan to include policies DP19 Transport and DP27 Noise, Air and Light requiring transport mitigation and due consideration to be given to Air Quality issues

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, including the 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.**

What can you do to help? We all need to play a part in reducing air pollution. Please consider whether you can do any of the following:

- Walk or cycle on shorter journeys
- Join a car-sharing scheme – see https://westsussexcarshare.liftshare.com/
- Turn your engine off when you're not moving
- If you know anyone with asthma or other breathing difficulties, let them know about airAlert
- 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

If you have any questions or want more information please see the Council's website at http://www.midsussex.gov.uk/environment-health/pollution/air-quality/

Air Quality in Mid Sussex District Council

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].

Sussex local authorities continually review air quality across the region to identify any breaches of air quality standards. This has resulted in the declaration of a number of Air Quality Management Areas across different local authorities in Sussex including one at Stonepound Crossroads in the Mid Sussex District.

Air quality is a material consideration when a development is planned. Mid Sussex District Council requires an air quality assessment where it deems air quality impacts from the development may be detrimental to the environment or people's health.

Nitrogen dioxide (NO_2)

The main pollutant of concern to Mid Sussex District is nitrogen dioxide (NO_2). The council declared an AQMA (Mid Sussex AQMA No. 1, https://uk-air.defra.gov.uk/aqma/details?aqma_id=814) with regard to exceedance of the annual mean national air quality objective for NO_2. The AQMA covers an area around the junction of Stonepound Crossroads, with Hurst Road, Keymer Road, Brighton Road and London Road in Hassocks in the Air Quality Management Area (AQMA) declared in March 2012 where an Air Quality Action Plan (AQAP) is being implemented.

The 2015 annual mean NO_2 concentrations were below the National NO_2 air quality objective at twenty-two out of twenty-five monitoring sites. The objective was exceeded at three locations, all situated in Hassocks. Two of the sites in Hassocks

[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

have relevant exposure, i.e., residential premises within 15m of a monitoring site. Both are within the AQMA.

Assessment of the long-term annual mean NO_2 concentrations, from 2011 to 2015, show a similar picture and concentrations have fallen since their peak in 2010. Over this time, further exceedances were also measured at two other sites in Hassocks in 2013-15. These other sites were already situated within, or within close proximity of, the AQMA.

Particulate matter (PM_{10})

No further action required.

Sulphur dioxide

No further action required.

Benzene

No further action required

Actions to Improve Air Quality

The AQAP focuses on a range of measures designed to limit the exceedance of the NO_2 air quality objective. These include:

- Ensuring traffic light sequencing is operating 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
- “Cut engine, cut pollution” signs erected at crossroads
- Working with local schools to amend travel plans
- Working with Planning to ensure maximum mitigation measures implemented for new development affecting the AQMA
- District Plan to include policies DP19 Transport and DP27 Noise, Air and Light requiring transport mitigation and due consideration to be given to Air Quality issues

Local Priorities and Challenges

With regard to air quality, the priorities for Mid Sussex District Council in the coming year are:

- Educating/encouraging the public to reduce reliance on car use
- Effectively communicating the issues to the public and to professional partners and colleagues
- Reducing levels of NO_2 towards meeting the health based objective level at the Stonepound Crossroads AQMA
- Ensuring that Waste Oil Burners within the district have been decommissioned in line with latest Defra policy

The key challenges that the authority faces are:

- The existing restraints preventing improvements at the AQMA – traffic light sequencing already close to optimum performance; road widening or other measures to improve flow limited by topography; alternative routes viewed by users as unreliable
- The lack of a demonstrable 5-year supply of housing means that developers rather than residents and the local authority may identify sites for new housing
- 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 close to the AQMA
- Using available evidence to better understand air pollution in the context of public health and to disseminate this information

How to Get Involved

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 now 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 now also available as a smart-phone app.

To receive local air pollution alerts and /or cold weather alerts you need to 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:

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

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1 Local Air Quality Management

This report provides an overview of air quality in Mid Sussex District Council during 2016. 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 District Council to improve air quality and any progress that has been made.

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

A summary of AQMAs declared by Mid Sussex District Council 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://uk-air.defra.gov.uk/aqma/details?aqma_id=814.

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Pollutants and Air Quality Objectives	City / Town	One Line Description	Action Plan
Mid Sussex AQMA No. 1	• NO_2 annual mean	Hassocks	Mid Sussex AQMA No. 1	Air Quality Action Plan for Stonepound Crossroads, Hassocks (http://www.midsussex.gov.uk/media/2256/mid_sussex_aqap_2013_for_web.pdf)

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

Mid Sussex District Council has taken forward a number of measures during the current reporting year of 2015 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. More detail on these measures can be found in their respective Action Plans. Due to the nature of the measures and the complex interaction of numbers of factors Key Performance Indicators would not be practicable and have therefore not been assigned. Key completed measures are:

- Traffic light sequencing assessed for Stonepound Crossroads
- “Cut engine, cut pollution” signs installed on each approach to the crossroads
- Links to airAlert and coldAlert added to Council website
- Council’s District Plan close to submission

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

- Widening of alternative route awaiting outcome of Local Growth Funding application and possible contribution from developers of large housing and industrial development
- Provision of Hassocks station to South Downs cycle path stalled due to landowner issues. Alternative route investigated but not viable. Other alternatives now being considered.
- Vehicle emissions testing near AQMA stalled as suitable site not identified and Police resources do not allow this exercise to be a priority at present.
- Lower speed limits and/or traffic calming measures to reduce rate at which traffic arrives at Stonepound Crossroads not viable as County do not believe any available measures would be effective.

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

- MSDC Travel Scheme review is expected to be completed this year. Discounted train travel available to staff through the Easit scheme
- Remaining Hassocks schools to have completed their School Travel Plans promoting walking, scootering, cycling as well as aiming to increase car-sharing. MSDC Sustainability Officer to continue to develop local projects

Mid Sussex District Council’s priorities for the coming year are:

- Monitoring and reviewing the progress of the AQAP
- Educating/encouraging the public to reduce reliance on car use through travel schemes, travel planning website, public transport initiatives and sustainable

business travel as well as promoting School Travel Plans through our Sustainability officer

- Effectively communicating the issues to the public and to professional partners and colleagues
- Reducing levels of NO_2 towards meeting the health based objective level at the Stonepound Crossroads AQMA by ensuring any development incorporates appropriate mitigation measures
- Ensuring that Waste Oil Burners within the district have been decommissioned in line with latest Defra policy

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
1.	Re-assess traffic light sequencing	Traffic Management	Strategic highway improvements	WSCC		Complete	n/a	n/a	There is very little alteration which can be made to the sequencing of lights which will increase the throughput of traffic. The traffic signal controlled already runs on software which monitors the throughput and queues on all approaches for each green light phase and makes decisions on when to turn from green to red to maximise capacity. ***WSCC revalidated the junction 14/7/14 when the operation of the signals was optimised with the current configuration. A traffic mitigation plan was submitted by the developer with the Ham Fields planning application and WSCC have considered upgrades to the software to improve the traffic light software, changes to the stage sequencing and changes to the island layouts and some road widening. WSCC concluded that these changes would result in a small improvement, but could not be introduced without a full refurbishment of the site costing in the region of £200k.***	By end 2014	
2.	Minimising HGV movements – advisory lorry routes	Freight and Delivery Management	Route Management Plans/Strategic routing strategy for HGVs	WSCC		Complete	n/a	n/a	Signage to encourage use of the A2300 from the A23 is already in place, but is not always the preferred option. There may be a local perception that the A2300 route has too great a delay or is unreliable. A study was completed in 2014 to investigate feasibility options for making the A2300 between Burgess Hill and the A23 in to a dual carriageway and for junction improvements. This is to support the planned housing and employment growth in the town proposed in the Northern Arc development. This route may become more attractive as it offers a more reliable journey time to the A23 than at present and relieves pressure on the A273. The results of the Study were reported in Autumn 2014 with a recommendation that part of the A2300 is dualled (A23 to Northern Arc Link Road), which will encourage rerouting away from the A273 north and south of Burgess Hill. ***A Strategic Outline Business Case was submitted in November 2014 and confirmation of receipt of £17m in Government funding to improve the A2300 link road was received in January 2015. Timing of improvements to the road will be linked to progress with the Northern Arc development.*** A publicity drive to be considered to encourage businesses to use the advisory HGV network https://www.westsussex.gov.uk/media/1980/alr_map_web.pdf .	By end of 2015	
3.	"Cut Engine, Cut pollution" signs	Traffic Management	Anti-idling enforcement	WSCC		Complete	n/a	n/a	**Completed**- four signs were installed on 29 August 2014, one on each approach. A joint press release was issued on 1 September and MSDC Cabinet Member conducted local radio interviews. An article regarding the signs and the Air Quality Action Plan appeared in the Winter 2014 edition of the MSDC magazine Mid Sussex Matters.	By end 2014	
4.	Mid Sussex District Council Travel Plan	Promoting Travel Alternatives	Other	MSDC		Complete	n/a	n/a	Travel Scheme review to be completed. MSDC has joined easit and are promoting train use to staff through discount cards. ***A Green Travel day was held at the Council in the Summer with incentives for staff to take sustainable methods of travel into work and promotion of easit cards.***	By end of 2015	

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
5.	School and work travel plans	Promoting Travel Alternatives	School Travel Plans	WSCC MSDC		Complete	n/a	n/a	Hassocks schools are expanding their capacity and revising their travel plans accordingly. The WSCC School Travel Advisor has worked with Downlands to produce a new School Travel Plan, including updated travel to school survey results. This identifies additional car sharing as a priority and to have 50% walking/scootering or cycling to school by July 2015. The School Travel Advisor has also been working with Hassocks Infant School on their Plan. Windmills Junior School have revised their Plan. ***The Walk to School LSTF programme led by Living Streets covers 60 schools in West Sussex, including ones in Mid Sussex, which provides an outreach project officer to work with pupils to encourage them to walk to school. The walk to School LSTF funding is to March 2016 after a successful application for a one year extension. Living Streets are actively engaged in projects with Windmills Junior School and Downlands School and are planning school route audit assessments with the schools and local community early in 2016.*** ***The Council's Sustainability Officer has worked with the Downlands School Eco-Co-ordinator to arrange a series of "Bike It" events in the week of 28 September to 2 October. This also involved a number of other organisations such as Hassocks Community Bike Hire and proper Cycle Café. Bike it was designed to get more children to cycle to and from school, through events such as a smoothie bike lunchtime, bike maintenance workshops, BMX skills presentation and participation in the Hurst Bike Train. 68 children biked to school on at least one of the days.*** Further projects to be developed by MSDC Sustainability Officer.	By end of 2015	
6.	Improve and promote cycle routes	Transport Planning and Infrastructure Promoting Travel Alternatives	Cycle network Public transport improvements-interchanges stations and services Promote use of rail and inland waterways	MSDC		On-going	Cycle path completion Cycle parking at station	minimal	Progress with the Hassocks station to the South Downs cyclepath has stalled due to land access issues. The alternative route that was considered to the east of the railway line has not proved to be viable. Alternatives are being considered including upgrading the existing cycle route via Lodge Lane or the possibility of a wayfinding plinth at the station. The South Downs National Park Local Sustainable Transport Fund project was successful in getting an extension for 2015/16 for revenue based activities (promotional activities, maps etc). As part of a broader strategy for South Mid Sussex, a wider cycle path network plan can be developed and prioritised for delivery through the South Mid Sussex Local Committee. ***The County Council is currently working with Sustrans to consider a prioritisation approach to the delivery of cycle route infrastructure across the county.*** ***The Consultation Draft Hassocks Neighbourhood Plan includes reference to supporting additional cycleways and bridleways, including a route to Clayton.*** Southern Rail have been successful in a bid for developing a Cycle Hub at Hassocks station, but they need to demonstrate complementary spend on cycling (up to the station boundary) in order to release the funds for the Hub.	On-going	
7.	Encourage alternate transport modes	Promoting Travel Alternatives	Other	MSDC and WSCC		On-going		minimal	***West Sussex County Council launched their Travel West Sussex website in April 2015 www.travelwestsussex.co.uk This enables residents to plan journeys by bus, rail, bicycle.*** The South Downs National Park Authority has a Sustainable Transport Fund, designed to encourage people to travel sustainably to and within the South Downs. They have also been running promotions such as two for one entry to tourist attractions if accessed by public transport. Note – mapping of local sustainable routes and services can be produced for local employers centred on their site, for a fee via a company called Pindar. Other initiatives that can be pursued include Bikeability training in schools ***(see Action 5 Downland School updates)***	On-going	

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
	Encourage uptake of electric vehicles	Promoting Low Emission Transport	Other	ESCC/ WSCC/ Sussex-air		On-going		minimal	The energise network was launched formally in July 2014, as part of the project to install rapid electric vehicle charging points in the South East by March 2015. WSCC and MSDC supported and assisted in locating charge point locations across the counties. Website - http://www.energisenetwork.co.uk/		
8.	Car share promotion	Alterantives to private vehicle use	Car & lift sharing. schemes Car clubs	WSCC and MSDC		On-going	Number of new users	minimal	WSCC projects under the Travelwise Sustainable Transport Fund behaviour change initiatives have included promotion of West Sussex car share www.westsussexcarshare.com through radio and other media and provision of an online journey planner that promotes active travel and public transport. Local projects will be developed through MSDC's Sustainability Officer. ***The Travel West Sussex website www.travelwestsussex.co.uk includes a search facility for potential journey sharers.*** MSDC has joined easit and is promoting its use by businesses through the Council's website, See http://www.easit.org.uk/	By end of 2014	
9.	Partnership work with bus and train operators	Promoting Travel Alternatives	Promote use of rail and inland waterways	WSCC		On-going		minimal	The new Thameslink franchise has been awarded to GoVia (Southern) who took over the First Capital Connect services from September 2014 with the Southern services merging into the franchise in 2015. The geography for the franchise will cover Sussex, Surrey, London and north to Bedford, Cambridge and Kings Lynn. As part of the franchise there will be more investment in cycle parking, station improvements and access to stations. Real time information on bus arrivals will require investment from WSCC and bus companies. Opportunities for better use of the existing community bus service and potential new services to be explored.	By end of 2015	
10.	Better driving techniques	Vehicle Fleet Efficiency	Driver training and ECO driving aids	MSDC		Complete		minimal	A list of the top 10 better driving techniques will be made available on the Mid Sussex District Council website, once the review of the Air Quality information available is complete (see action 11). A link to eco-driving tips on the AA website was included in the Mid Sussex Matters article.	By end of May 2015	
11.	Increase air quality information available	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	MSDC		On-going		minimal	The 2014 Air Quality Progress Report has been submitted to Defra and published on the Council's website. This includes additional air quality data, including latest data for monitoring at Stonepound Crossroads. ***The 2015 Updating and Screening Assessment has been published containing further air quality monitoring data*** ***http://www.midsussex.gov.uk/media/USA_Mid_Sussex_2015_England_web.pdf***	By end of May 2015	
12.	Health and Wellbeing promotion	Public Information	Via the Internet	MSDC		On-going		minimal	Links to airAlert and the coldAlert service have been added to the MSDC website. Provision of services by Sussex Air is currently under review by the Council. No directly relevant initiatives aimed at respiratory illnesses are included in the current Mid Sussex Wellbeing programme.	On-going	
13.	Promote national energy efficiency schemes e.g. Green Deal.	Promoting Low Emission Plant	Emission control equipment for small and medium sized stationary combustion sources / replacement of combustion sources	WSCC MSDC		On-going		minimal	Schemes with the Sussex Energy Saving Partnership are being promoted, including one for replacement boilers and insulation aimed at low income and vulnerable households. ***The Green Deal has been discontinued. MSDC has worked with the Mid Sussex Older People's Council to gain access to funding from the British Gas Energy Trust Healthy Homes Fund. The Council supported the "Heat for Health" bid which has brought £126k of funding. Money is available for energy saving measures in Mid Sussex such as boiler replacement, insulation, glazing etc. aimed at fuel-poor households in homes with someone over 65 or under 5.***	On-going	

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Progress to Date	Estimated Completion Date	Comments
14.	EPA90 statutory nuisance	Policy Guidance and Development Control	Other policy	MSDC		On-going		minimal	All complaints, including smoke from bonfires, are investigated for statutory nuisance as and when they are received. Environmental Health also regulates certain industrial process for emissions to the atmosphere, but there is currently none in the area of the AQMA.	On-going	
15.	Vehicle emission testing	Vehicle Fleet Efficiency	Testing Vehicle Emissions	MSDC		Planning	Number of vehicles tested	minimal	This action involves identifying a suitable site to carry out the exercise, organising the police to attend to pull vehicles in and VOSA officers to carry out the exhaust emissions tests on the vehicles. Mid Sussex District Council officers will provide information on air quality and vehicle emissions***. A date will be arranged for this exercise, subject to a suitable site being identified.*** As part of its taxi licensing responsibilities, MSDC undertakes quarterly taxi cab emission testing. Exercise to be conducted targeted at taxi cabs that operate in Hassocks and publicised**.**	Once per year	
16.	Mid Sussex District Plan & Local Development Framework	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance Other policy	MSDC		Post consultation		minimal	***The District Plan is now due to be submitted early in 2016, following consultation on proposed amendments to housing numbers.*** The new District Plan includes Transport Policy DP18 and Noise, air and light pollution policy DP26. Existing Local Plan policies require transport mitigation plans and account to be taken of air quality issues.	On-going	
17.	Incorporate "Sussex Air Quality Guidance for Planners"	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	MSDC		On-going /up-dating 2017		minimal	Developers are directed to the Guidance and Environmental Health will reference it in their response to planning applications. Where required, Environmental Health also recommend conditions to planning permissions that minimise the adverse impacts on Air Quality. Air quality and emissions mitigation guidance for Sussex authorities (2013) http://www.sussex-air.net/PDF/SussexAQGuidanceJan2014.pdf	By end of 2013	
18.	Air Quality Monitoring			MSDC		On-going		minimal	On-going monitoring of air quality across the District. Results are referred to in the Annual Monitoring Report. ***Also publication of the Air Quality Updating and Screening Assessment.*** The impact of any measures taken in the AQMA will be monitored.	On-going	
Additional actions suggested from the consultation exercise											
19.	Consider introduction of lower speed limits and/or traffic calming measures to reduce the rate at which traffic arrives at the junction.	Traffic Management	Reduction of speed limits, 20mph zones	WSCC		Complete		n/a	If there were more suitable alternative routes it would be an easier and more defendable action to dissuade traffic from using this route. Other action plan measures are considering the routing of HGVs via the A23, however any other local route would be an unsuitable alternative for longer distance through traffic. The success of a speed limit relies on a driver's understanding of the need to adopt a lower speed – for example in built up area or where there may be conflicting crossing movements. Therefore use of a lower speed limit without these other factors is unlikely to produce beneficial results and could just lead to more drivers ignoring speed limits. For this to be effective there also needs to be robust enforcement of the speed limit.	Completed	
20.	Consider enforcement of commuter on-street car parking around Hassocks station.	Traffic Management	Parking Enforcement on highway	MSDC WSCC		On-going Consultation		minimal	Actions in the Hassocks Parish Council Parking and Traffic Flow Report include consideration of parking restrictions on the roads in the area NE of the crossroads (e.g. Stanford Avenue), which will dissuade commuters from driving through the AQMA to park up for free during the day. West Sussex County has now included the Hassocks Parking Report in their programme of future work. Initially consultants will review the recommendations that apply to WSCC and in discussion with the Parking Working Group will draw up an action plan. ***Public consultation on parking restrictions is likely to be undertaken in the spring.***	2017	

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.

Due to its extremely small size, $PM_{2.5}$ can travel for long distances in the air and it is estimated that as much as 40% to 50% of the levels found in any given area can be from sources outside a local authority's direct boundary18[4]. Nevertheless, this means that the contribution of local sources to total $PM_{2.5}$ levels is significant (typically 50% or more), and therefore local actions to reduce $PM_{2.5}$ emissions will have a significant beneficial impact with regard to overall $PM_{2.5}$ concentrations.

Mid Sussex District Council does not have monitoring sites for $PM_{2.5}$ or PM_{10} in the District. However, the Sussex Air Quality Network contains 7 permanent automatic particulate monitoring sites measuring both $PM_{2.5}$ and PM_{10}.

The current Sussex locations of the particulate monitoring sites are:

- Lewes Town Centre (PM_{10})
- Storrington (PM_{10} & $PM_{2.5}$)
- Eastbourne – Holly Place (PM_{10} & $PM_{2.5}$)
- Rother – De la Warr Rd (PM_{10})
- Hastings Bulverhythe (PM_{10})
- Brighton (PM_{10} & $PM_{2.5}$)
- Chichester A27 (PM_{10})

The air quality objective for PM_{10} has only been exceeded in Hastings (2004) after which an AQMA was declared, however recent measurements over several years

[4] Fine Particulate Matter ($PM_{2.5}$) in the United Kingdom. Air Quality Expert Group (AQEG) Report. 2012 - https://www.gov.uk/government/publications/fine-particulate-matter-pm2-5-in-the-uk

have shown PM_{10} to be well under the objective. Therefore, it is unlikely that it will be exceeded in future years in Mid Sussex as no new major industrial developments are currently planned in the District.

The PM_{10} monitor most local to Mid Sussex is located in Lewes and measured 16.5µg/m³ annual average for 2015 (provisional data), which is well below the PM_{10} annual objective level (40µg/m³). Following the LAQM calculation methodology[5] to convert PM_{10} concentrations to $PM_{2.5}$ equivalent values, the Lewes PM10 annual average is equivalent to $PM_{2.5}$ = 11.55µg/m³ annual average for 2015.

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.

[5] (LAQM.TG(16) Chapter 7 Section 1 (paras 7.107 to 7.111))

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

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Mid Sussex District Council does not have any automatic air quality monitoring sites.

3.1.2 Non-Automatic Monitoring Sites

Mid Sussex District Council has carried out non- automatic (passive) monitoring of NO_2 at 25 sites in 2015. Table A.1 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) and bias adjustment for the diffusion tubes are included in Appendix C.

The Air Quality Progress Report 2008 indicated that the Stonepound crossroads area, located in Hassocks, was at risk of exceeding the annual mean air quality objective for nitrogen dioxide and consequently 8 additional monitoring sites were added to the network in July 2008. The results for 2009 and 2010 confirmed further exceedences and consequently early in 2012 an Air Quality Management Area (AQMA) was declared. The tri-located diffusion tubes at Stonepound traffic lights were split in 2013, two were relocated to Overcourt whilst leaving one located on the traffic lights. Tri-located tubes are still present at Overcourt on the Northern Façade.

Two NO_2 diffusion tube monitoring sites were retired at the end of 2015:

1. Court Close, East Grinstead
2. Pyecombe Street, Pyecombe,

Following the 2014 Progress Report, two further NO_2 diffusion tube monitoring sites were identified and were included in the monitoring program for January to December 2015. These were:

1. Erica Way Copthorne

   This is as a result of an Air Quality modelling assessment undertaken by consultants for the outline planning application for a development to the West of Copthorne which identified a predicted level at Erica Way above the objective.

2. London Road, Hickstead (the slip road from the A23 to the A2300)

This is due the proposed widening of the A2300 and the possible housing development to the North of it.

3.2 Individual Pollutants

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

3.2.1 Nitrogen Dioxide (NO_2)

The full 2015 dataset of monthly mean values is provided in Appendix B.

The 2015 annual mean NO_2 concentrations were below the National NO_2 air quality objective at twenty-two out of twenty-five monitoring sites. The objective was exceeded at three locations, all situated in Hassocks:

1. Stonepound, Keymer Road, Hassocks*
2. Overcourt, Northern Façade, Keymer Road, Hassocks*
3. Lamp post, Keymer Road, Hassocks

The first two sites have relevant exposure (as denoted by the *), i.e., residential premises are within 15m of the monitoring site. Both are within the existing AQMA.

Long-term trend analysis of the annual mean NO_2 concentrations is presented in Appendix F. The assessment of the long-term annual mean NO_2 concentrations, from 2011 to 2015, show a similar picture with concentrations falling since their peak in 2010. Over this time, further exceedances of the National NO_2 air quality objective were also measured at two other sites in Hassocks:

1. Bus Stop, London Road, Hassocks in 2012 and 2014
2. Telegraph Pole Keymer Road, Hassocks in 2013

These other sites were also situated within, or within close proximity of the existing AQMA, however these are not locations of relevant public exposure, as they are not on the façade of buildings. Therefore, no change to the current AQMA boundary is required.

Appendix A: Monitoring Results

Mid Sussex District Council does not have any automatic air quality monitoring sites.

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

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube collocated with continuous analyser?	Height (m)
MSAQ1	South Road, Haywards Heath	Roadside	533342	123587	NO_2	No	Yes (0m)	2.5m	N	1.6m
MSAQ2	Traunstein Way, Bolnore Village, Haywards Heath	Roadside	532155	122463	NO_2	No	No	N/A	N	2.0m
MSAQ3	London Road, East Grinstead	Kerbside	538690	138759	NO_2	No	No	0.5m	N	2.2m
MSAQ4	Court Close, East Grinstead	Suburban	528289	116395	NO_2	No	Yes (14m)	0.5m	N	2.5m
MSAQ5	Lewes Road, East Grinstead	Suburban	541243	136998	NO_2	No	No	1.5m	N	2.3m
MSAQ6	Smugglers End, Handcross	Roadside	526138	129827	NO_2	No	Yes (0m)	N/A	N	1.8m

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 continuous analyser?	Height (m)
MSAQ7	Crabbet Park, Worth	Suburban	530440	137280	NO_2	No	Yes (0m)	N/A	N	2.1m
MSAQ8	Pyecombe Street, Pyecombe	Roadside	528477	112870	NO_2	No	Yes (7.5m)	1m	N	2.2m
MSAQ9	Water Tower, Colwood Lane, Warninglid	Rural	525671	125034	NO_2	No	No	N/A	N	2.1m
MSAQ10	Stonepound Crossroads (Traffic Lights on Keymer Road), Hassocks	Roadside	529911	115489	NO_2	Yes	Yes (6.7m)	1.5m	N	1.7m
MSAQ11	Over Court, Northern façade, Keymer Road, Hassocks	Roadside	529930	115481	NO_2	Yes	Yes (0m)	5.5m	N	2.5m
MSAQ12	Telegraph Pole, Keymer Road, Hassocks	Kerbside	529999	115488	NO_2	No	No	1.1m	N	2.4m
MSAQ13	Lamp Post,	Kerbside	529995	115476	NO_2	No	No	0.85m	N	2.3m

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 continuous analyser?	Height (m)
	Keymer Road, Hassocks									
MSAQ14	Bus Stop, London Road, Hassocks	Kerbside	529911	115598	NO_2	No	No	1.6m	N	2.6m
MSAQ15	Traffic Lights Sign, London Road, Hassocks	Kerbside	529930	115600	NO_2	No	Yes (6.5m)	1.6m	N	2.4m
MSAQ16	Royston Nursing Home, Brighton Road, Hassocks	Roadside	529918	115441	NO_2	No	Yes (0m)	11.5m	N	2.4m
MSAQ17	Lamp Post, Brighton Road, Hassocks	Kerbside	529894	115340	NO_2	No	Yes (10m)	1.25m	N	2.2m
MSAQ18	Bus Stop, Brighton Road, Hassocks	Kerbside	529907	115428	NO_2	No	Yes (14m)	2.0m	N	2.6m
MSAQ19	Lamp Post, Hurst Road, Hassocks	Roadside	529779	115557	NO_2	No	Yes (13.2m)	1.3m	N	2.5m

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 continuous analyser?	Height (m)
MSAQ20	New Way Lane, Hurstpierpoint	Rural	528854	114517	NO_2	No	N/A	N/A	N	2.3m
MSAQ21	London Road, Burgess Hill	Roadside	530792	119821	NO_2	No	Yes (2.5m)	1.9m	N	2.0m
MSAQ22	Leylands Road, Burgess Hill	Roadside	532160	120069	NO_2	No	Yes (3m)	1.5m	N	2.0m
MSAQ23	Over Court, Eastern façade, Keymer Road, Hassocks	Roadside	529935	115478	NO_2	Yes	Yes (0m)	5.8m	N	2.0m
MSAQ24	Over Court, Western façade, Keymer Road, Hassocks	Roadside	529918	115476	NO_2	Yes	Yes (0m)	7.5m	N	1.8m
MSAQ25	Erica Way, Copthorne	Kerbside	531176	138829	NO_2	No	Yes (0m)	4.0m	N	2.0m
MSAQ26	High Street Lampost No.14 (adj.to Truffles)	Suburban	528289	116395	NO_2	No	Yes (0.8m)	2.1m	N	2.5m

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 continuous analyser?	Height (m)
	Hurstpierpoint									
MSAQ27	Telegraph Pole London Road Hickstead	Suburban	526872	120240	NO_2	No	Yes (10m)	3.8m	N	2.2m

(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.

Appendix B: Full Monthly Diffusion Tube Results for 2015

Table B.1 – NO_2 Monthly Diffusion Tube Results - 2015

Site ID	NO_2 Mean Concentrations (µg/m^3)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean	
													Data	Bias Adjusted (1)
MSAQ1	27.6	25.1	24.4	20.9	20.6	20.0	19.8	19.6	20.6	24.5	15.5	18.6	21.4	19.5
MSAQ2	Site moved/ Lost	Site moved/ Lost	Site moved/ Lost	Site moved/ Lost	18.4	22.1	21.5	23.6	19.3	26.9	21.3	21.3	25.5 (Annualised see Appendix C)	23.2
MSAQ3	47.6	56.4	39.7	36.7	36.7	35.0	36.3	39.1	34.0	38.7	44.5	41.7	40.5	36.9
MSAQ4	Site 'retired' at the end December 2014													
MSAQ5	49.0	42.7	38.9	30.0	30.3	33.6	31.2	34.9	35.8	44.2	30.9	31.8	36.1	32.8
MSAQ6	36.3	35.7	31.2	24.0	28.4	31.5	33.1	35.1	30.0	33.2	25.0	26.0	30.8	28.0
MSAQ7	35.1	35.5	30.4	23.2	22.4	22.9	27.7	28.7	27.5	29.3	22.3	28.6	27.8	25.3
MSAQ8	Site 'retired' end December 2014													

Site ID	NO_2 Mean Concentrations (µg/m^3)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean	
													Data	Bias Adjusted (1)
MSAQ9	12.8	9.8	11.4	8.5	7.1	6.5	6.4	7.8	9.1	13.3	6.7	6.8	8.8	8.0
MSAQ10	57.2	44.6	46.9	37.3	29.5	55.0	41.7	32.2	50.9	70.3	Lost	22.3	44.4	40.4
MSAQ11	47.3	54.8	43.6	38.8	32.8	46.9	44.1	48.5	43.9	53.0	40.1	40.0	44.5	40.5
MSAQ12	57.6	45.5	49.2	38.0	16.0	41.4	38.4	45.8	36.5	40.9	34.3	24.1	39.0	35.5
MSAQ13	17.8	54.9	58.9	48.1	42.8	48.5	42.4	38.9	52.1	62.2	50.9	38.1	46.3	42.1
MSAQ14	36.0	40.8	32.4	31.7	34.2	37.5	41.5	44.1	32.5	45.1	38.6	47.0	38.5	35.0
MSAQ15	42.6	44.5	39.4	25.0	37.6	45.2	43.7	45.4	33.8	43.9	Lost	44.9	40.6	36.9
MSAQ16	30.3	24.1	27.0	19.1	17.0	20.0	18.3	19.7	22.0	26.6	16.8	12.1	21.1	19.2
MSAQ17	31.5	28.7	28.6	23.4	20.2	26.7	21.9	25.2	26.6	34.8	20.0	20.7	25.7	23.4
MSAQ18	41.5	40.9	40.1	31.0	29.1	37.6	29.6	37.3	33.3	42.9	26.1	Lost	35.4	32.2
MSAQ19	25.9	26.6	20.4	19.6	13.3	14.3	15.3	13.3	15.3	23.1	15.1	15.3	18.1	16.5

Site ID	NO_2 Mean Concentrations (µg/m^3)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean	
													Data	Bias Adjusted (1)
MSAQ20	13.2	10.3	12.2	9.7	6.9	7.9	6.8	8.0	7.1	11.5	6.6	8.6	9.1	8.2
MSAQ21	Lost	38.5	42.4	31.0	19.7	29.1	22.5	29.0	32.0	44.3	21.0	21.9	30.1	27.4
MSAQ22	41.1	39.5	37.2	28.1	25.2	23.5	22.8	24.8	27.8	34.9	30.7	24.0	30.0	27.3
MSAQ23	43.0	45.3	42.6	29.2	30.9	37.4	33.2	32.5	37.8	43.6	21.5	22.4	34.9	31.8
MSAQ24	33.3	32.2	34.1	20.8	18.9	23.9	17.9	22.9	26.7	32.7	18.3	15.4	24.7	22.5
MSAQ25	34.3	37.3	31.0	25.9	28.5	28.9	32.1	35.5	30.7	32.6	31.7	35.7	32.0	29.1
MSAQ26	43.6	35.7	29.3	25.2	20.4	Lost	17.5	22.7	26.1	30.7	23.6	18.9	26.7	24.3
MSAQ27	30.6	30.3	31.9	25.0	15.6	20.7	24.5	17.5	22.9	34.8	11.0	18.0	23.6	21.4

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

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

Supporting Technical Information

Industrial Installations

Mid Sussex confirms that no significant changes to industrial installations occurred in the Local Authority area since the last LAQM report.

Road Construction

Mid Sussex confirms that no significant roads were proposed or constructed in the Local Authority area since the last LAQM report.

Combustion Installations

Table 1 summarises the changes in combustion installations (>5 $MW_{thermal}$, burning coal, fuel oil or biomass) since the last LAQM report.

Table 1 Changes in combustion installations

Process	Description
Small Waste Oil Burner	**Bolney Grange Garage, Bolney Grange Business Park, Bolney** WOB decommissioned as a result of changes to defra permitting regime.
Small Waste Oil Burner (Compressors)	**HPC plc, Victoria Gardens, Burgess Hill, RH15 9RQ** Both WOB's decommissioned as a result of changes to defra permitting regime. May be converted to clean fuel.
Small Waste Oil Burner (Engineering)	
Small Waste Oil Burner	**Turbo Torque, Unit 11, Farmers Stores, Gatehouse Lane, Hassocks, West Sussex, BN6 9LE** WOB decommissioned as a result of changes to defra permitting regime.

Planning Applications

A list of planning applications, which could potentially affect air quality, and any ES, EIA or air quality impact assessment reports produced in support of such applications, are given in the Table 2. The last three entries relate to planning permission applications adjacent to Mid Sussex AQMA No. 1.

Table 2 Planning applications

Date	Application number	Description
09.04.2015	DM/15/1492	**Land parcel at Blackwell Farm Road, East Grinstead, West Sussex** Outline application for residential development of up to 10 dwellings, including parking and means of access. All dwellings to be affordable providing a mix of affordable rent and shared ownership units.
07.04.2015	DM/15/1511	**Standgrove Field, Lodgelands, Ardingly, West Sussex** Residential development comprising of 36 residential dwellings, including access roads, associated infrastructure, landscaping and associated parking and garaging.
09.04.2015	DM/15/1565	**Bic Ling Kee House, 1, Christopher Road, East Grinstead West Sussex.** Extension to form east wing and roof extension to form 10 additional flats together with elevational changes to existing building and ancillary works.
05.05.2015	DM/15/1872	**Wychwood, Turners Hill Road, Crawley Down, Crawley** Reserved matters application for the approval of appearance, landscaping, layout and scale following approval of reference 14/02000/OUT for the

Date	Application number	Description
		development of 23 dwellings with associated landscaping and parking.
20.05.2015	DM/15/2093	**Land between The Willows and Bennetts Rise, Southdowns Park, Haywards Heath, West Sussex** Development of 13 dwellings including construction of access road and landscaping. Amended plans received to the layout and design of the scheme.
28.05.2015	DM/15/2182	**Clock Field, North Street, Turners Hill, West Sussex** Reserved matters application for the approval of appearance and landscaping following outline approval referenced 11/01332/OUT for the erection of 47 dwellings (30 percent affordable), internal roads and parking, provision of open space, construction of new access roundabout, and upgrading of twitten between North Street and Lion Lane.
15.07.2015	DM/15/2923	**Beacon Heights, 4 Church Road, Haywards Heath, West Sussex** Demolition of existing building and erection of 24 residential dwellings in two linked 4 storey blocks, comprising two 1-bedroom apartments and twenty-two 2-bedroom apartments, landscaping and associated works.
08.09.2015	DM/15/3636	**151 Western Road, Haywards Heath, West Sussex, RH16 3LH** No description provided.
18.09.2015	DM/15/3772	**Pease Pottage Golf Course and Driving Range, Horsham Road, Pease Pottage, Crawley**

Date	Application number	Description
		Reserved matters application for the approval of appearance, landscaping, layout, and scale following approval of 13/02994/OUT for redevelopment of site to provide 95 residential dwellings along with associated parking, access and open space.
2/12/2009	09/03697/OUT	**Keymer Brick & Tile Co Ltd., Claypits and Tileworks, Nye Road,Burgess Hill** The remodelling and stabilisation of the site to support the development of land to provide a sustainable new community comprising 475 dwellings with associated infrastructure, including new vehicular access onto Kings Way, Wyvern Way and Curf Way, and community leisure facilities (being built now).
No date given	DM/15/0626	**Friars Oak, London Road, Hassocks** Hybrid planning application comprising outline application for access only for residential development of 130 dwellings consisting of twelve 1 bed apartments, twenty seven 2 bed houses, forty seven 3 bed houses and forty four 4 bed houses and publically accessible open space
25.04.2016	DM/16/1775	**Hassocks Golf Course** Comprehensive redevelopment comprising: up to 130 residential units; replacement golf clubhouse; new driving range; new golf holes; new maintenance store; strategic landscaping; and associated drainage and access works.
No date given	13/03818/out	**Hamfields – land parcel at London Road, Hassocks, West Sussex** Outline planning application for the development of up

Date	Application number	Description
		to 97 new homes, associated landscaping and open space on land off London Road, Hassocks. Landscape and Visual Impact Appraisal received 27 February 2014.

Annualised result for Traunstein Way Haywards Heath

Necessary as only 8 monthly results available.

Annualised average for Traunstien Way Bolnore Village Haywards Heath					
Start Date	End Date	B1 (Continuous monitor)	D1 (Diffusion tube at Bolnore Village)	B1 when D1 is Available	
13/01/2015	09/02/2015	22.4			
09/02/2015	06/03/2015	20.4			
06/03/2015	02/04/2015	16.2			
02/04/2015	01/05/2015	18.1			
01/05/2015	01/06/2015	10.2	18.4	10.2	
01/06/2015	09/07/2015	11.2	22.1	11.2	
09/07/2015	04/08/2015	11.7	21.5	11.7	
04/08/2015	26/08/2015	13.0	23.6	13.0	
26/08/2015	02/10/2015	13.2	19.3	13.2	
02/10/2015	02/11/2015	19.1	26.9	19.1	
02/11/2015	07/12/2015	12.3	21.3	12.3	
07/12/2015	08/01/2015	11.3	21.3	11.3	
Average		**14.9**	**21.8**	**12.8**	
		Am		Pm	
Ratio Am/Pm		**1.2**			
Annualised average		**21.8 * 1.2**	**25.5**		

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 0.91 taken from the database of diffusion tube bias factors spreadsheet (v03.16) 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

Figure 1 Air Quality Monitoring Sites 2015

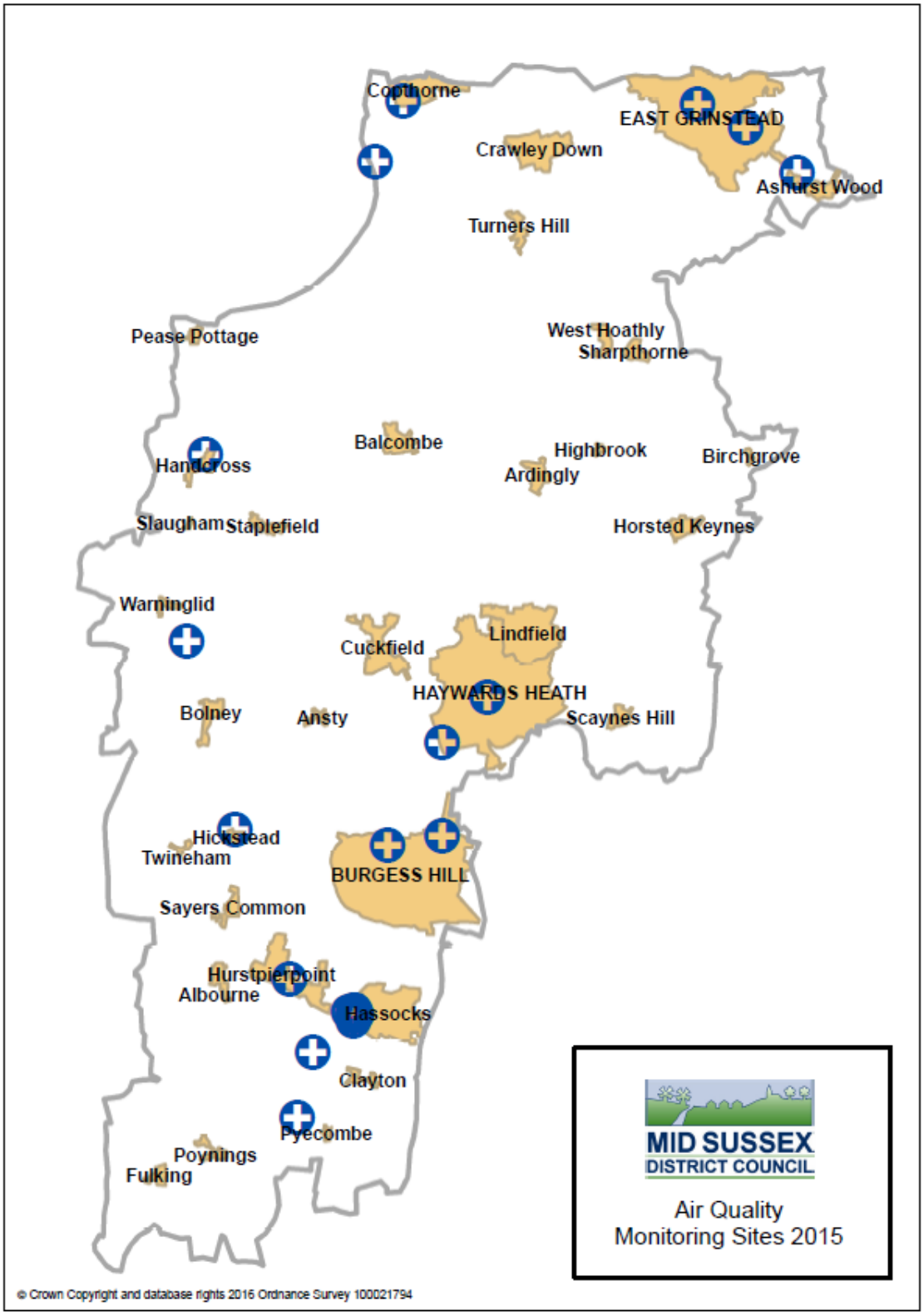


Figure 2 MSAQ01 South Road, Haywards Heath, adjacent to The Cook Shop

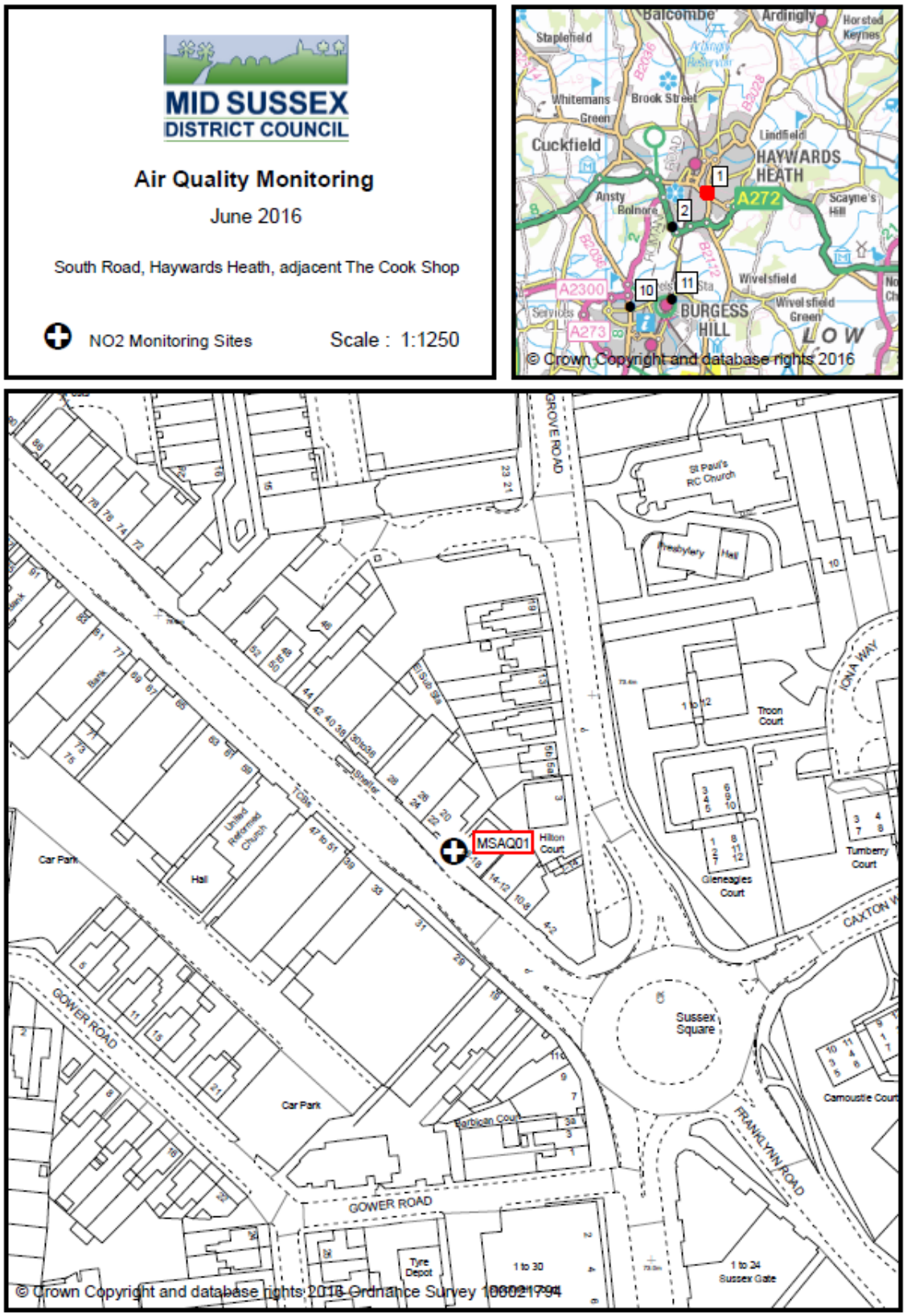


Figure 3 MSAQ02 Lower Village roundabout, Traunstein Way, Haywards Heath

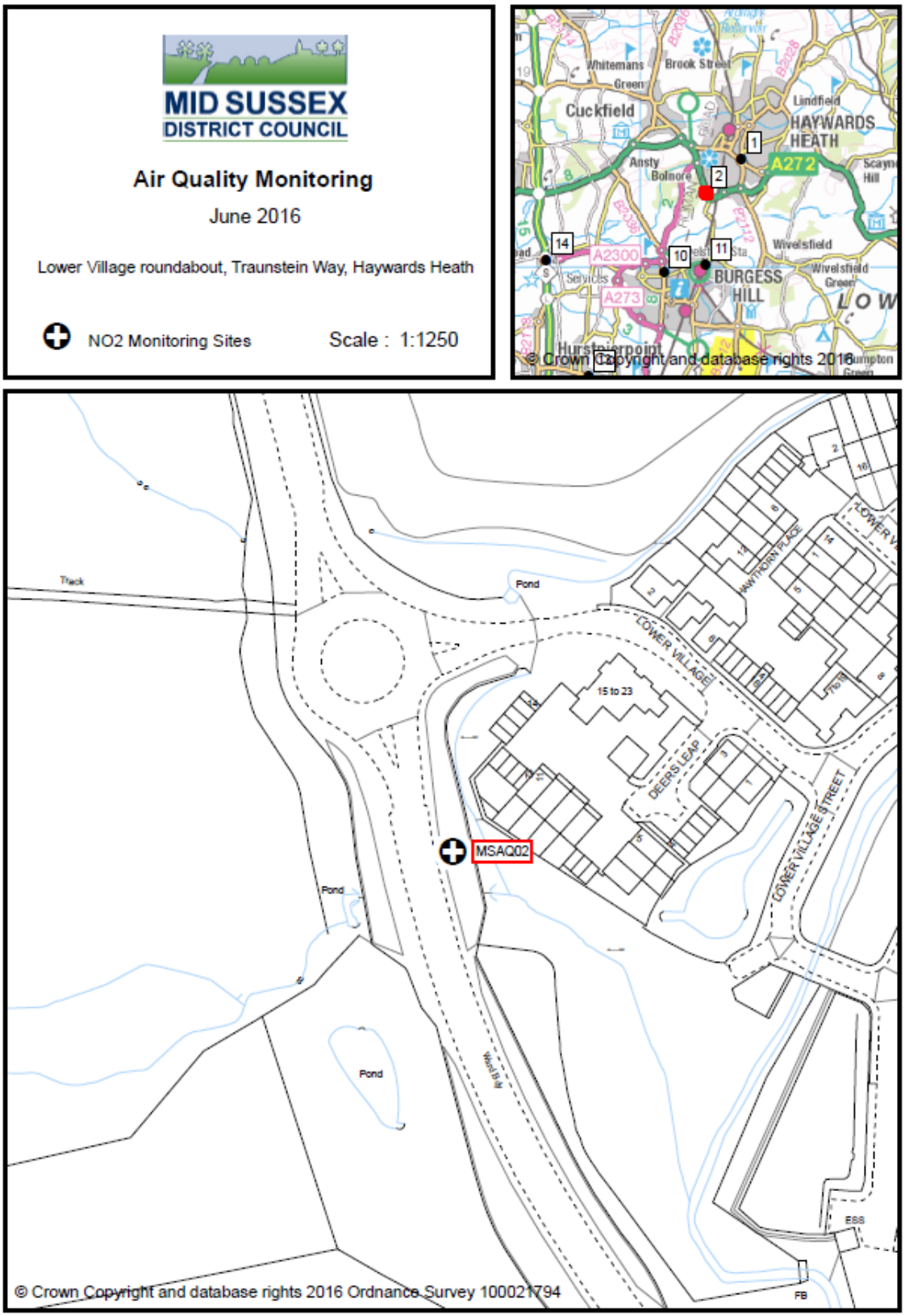


Figure 4 MSAQ03 London Road, East Grinstead, adjacent to Southwick House

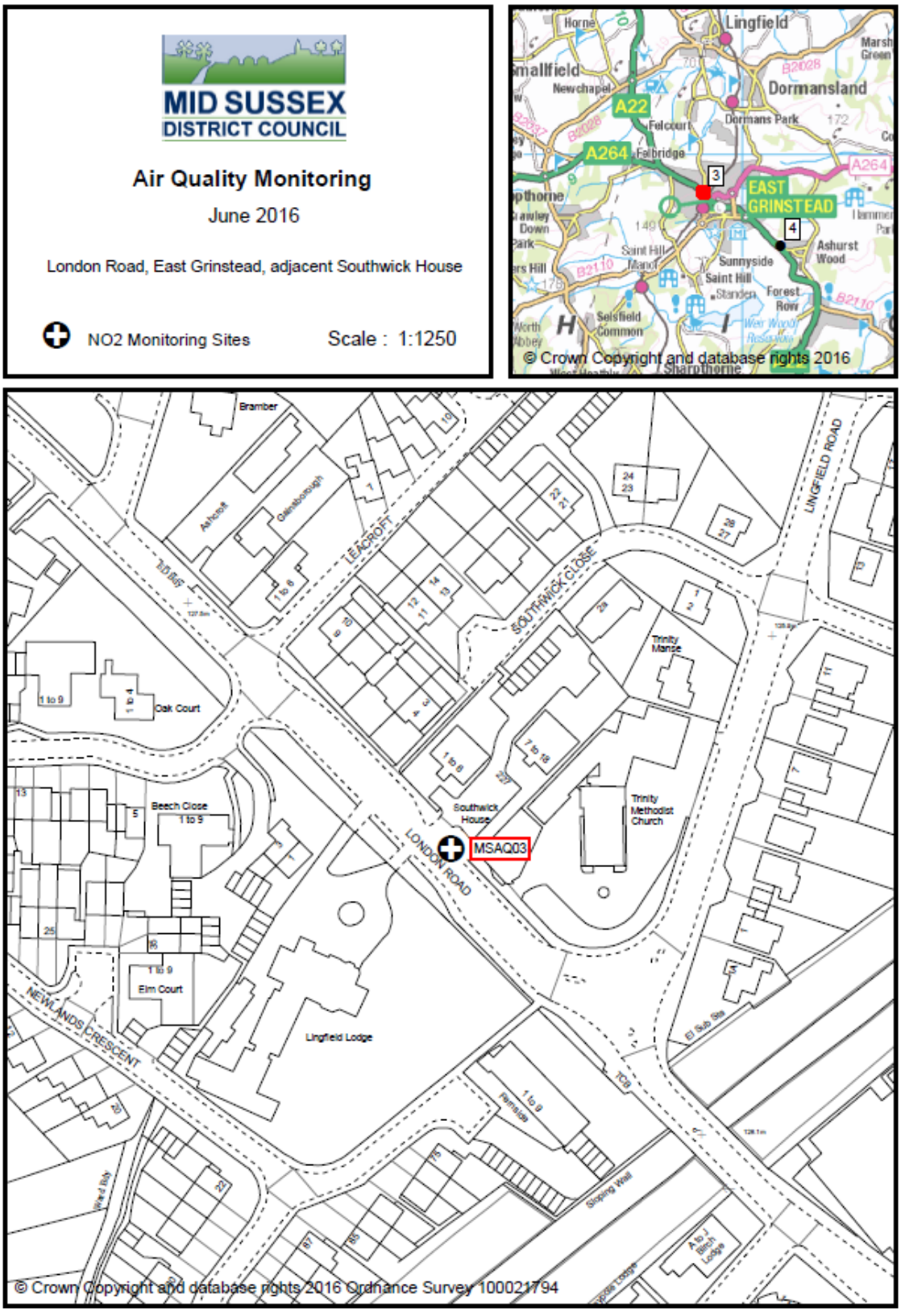


Figure 5 MSAQ05 Lewes Road, East Grinstead

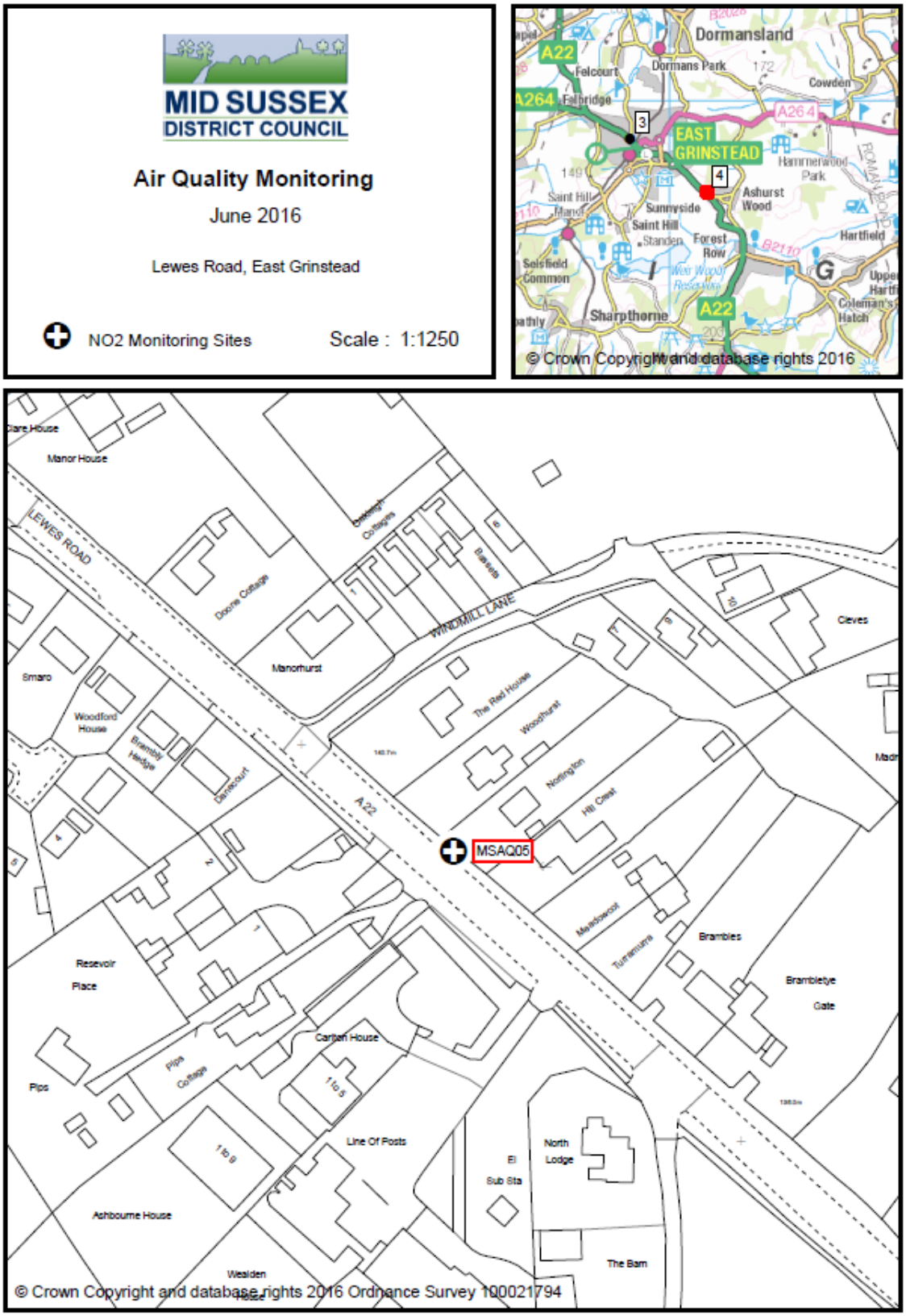


Figure 6 MSAQ06 Smugglers End, Handcross

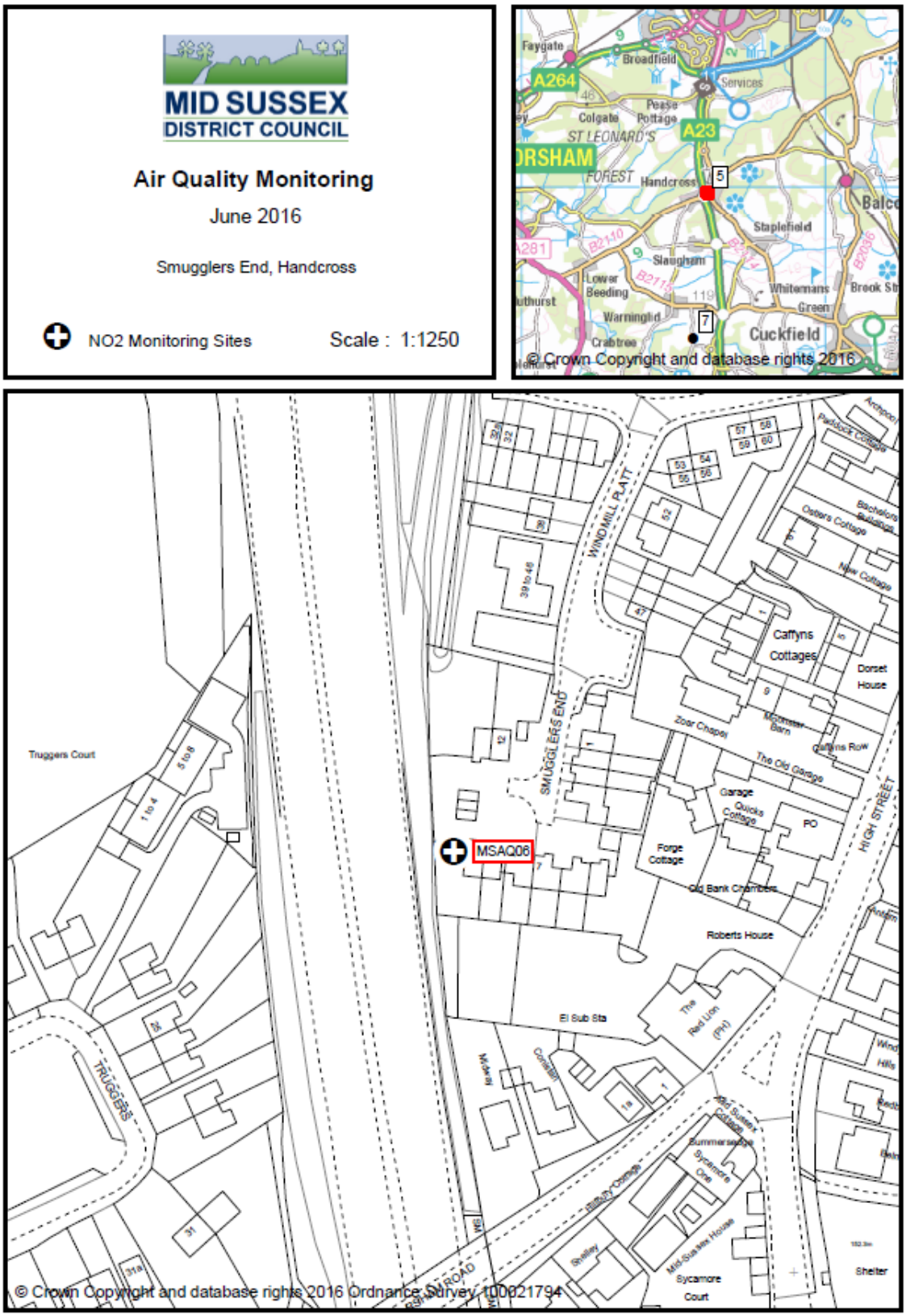


Figure 7 MSAQ07 Crabbet Park, Worth

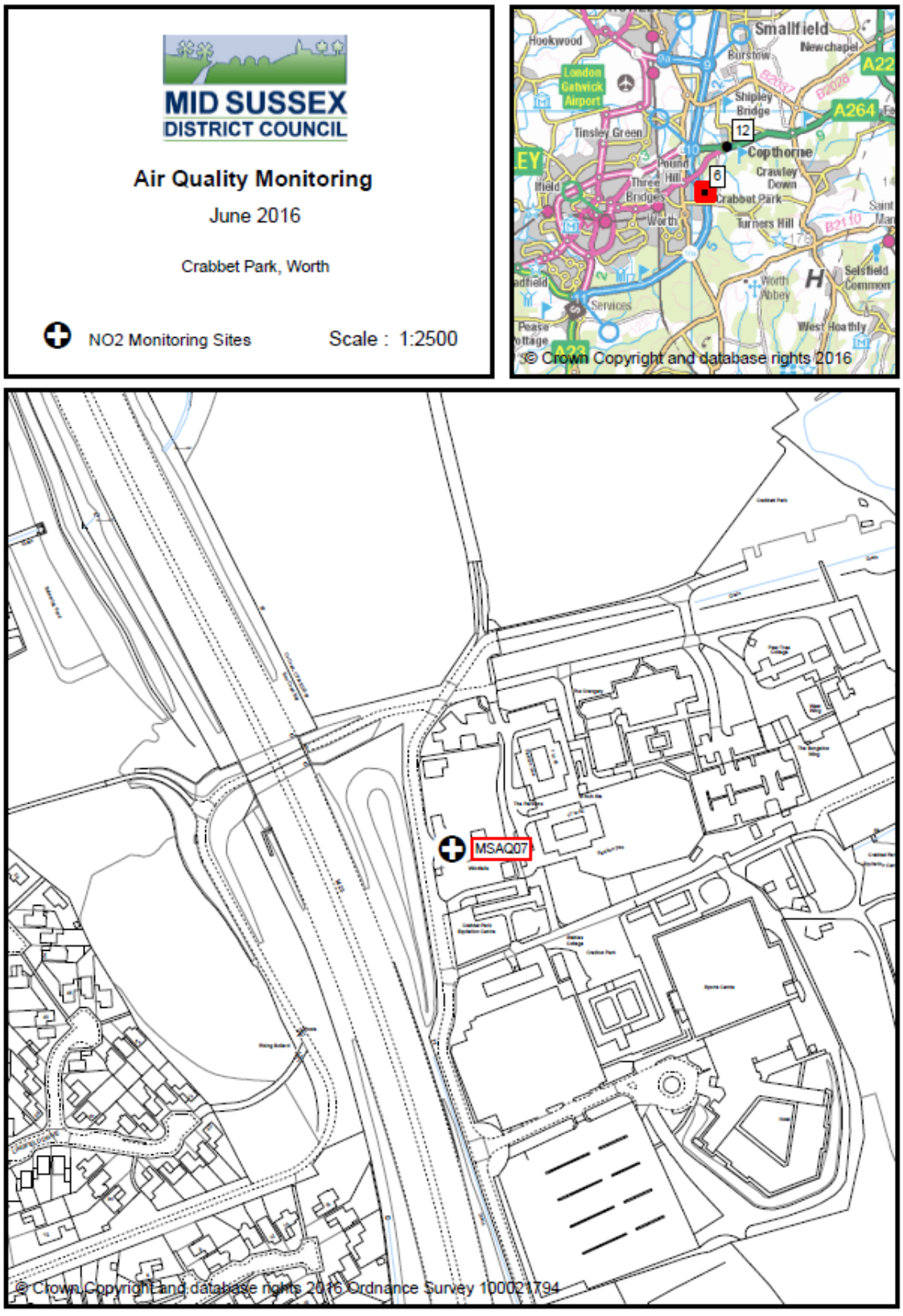


Figure 8 MSAQ09 Water Tower, Colwood Lane, Warninglid

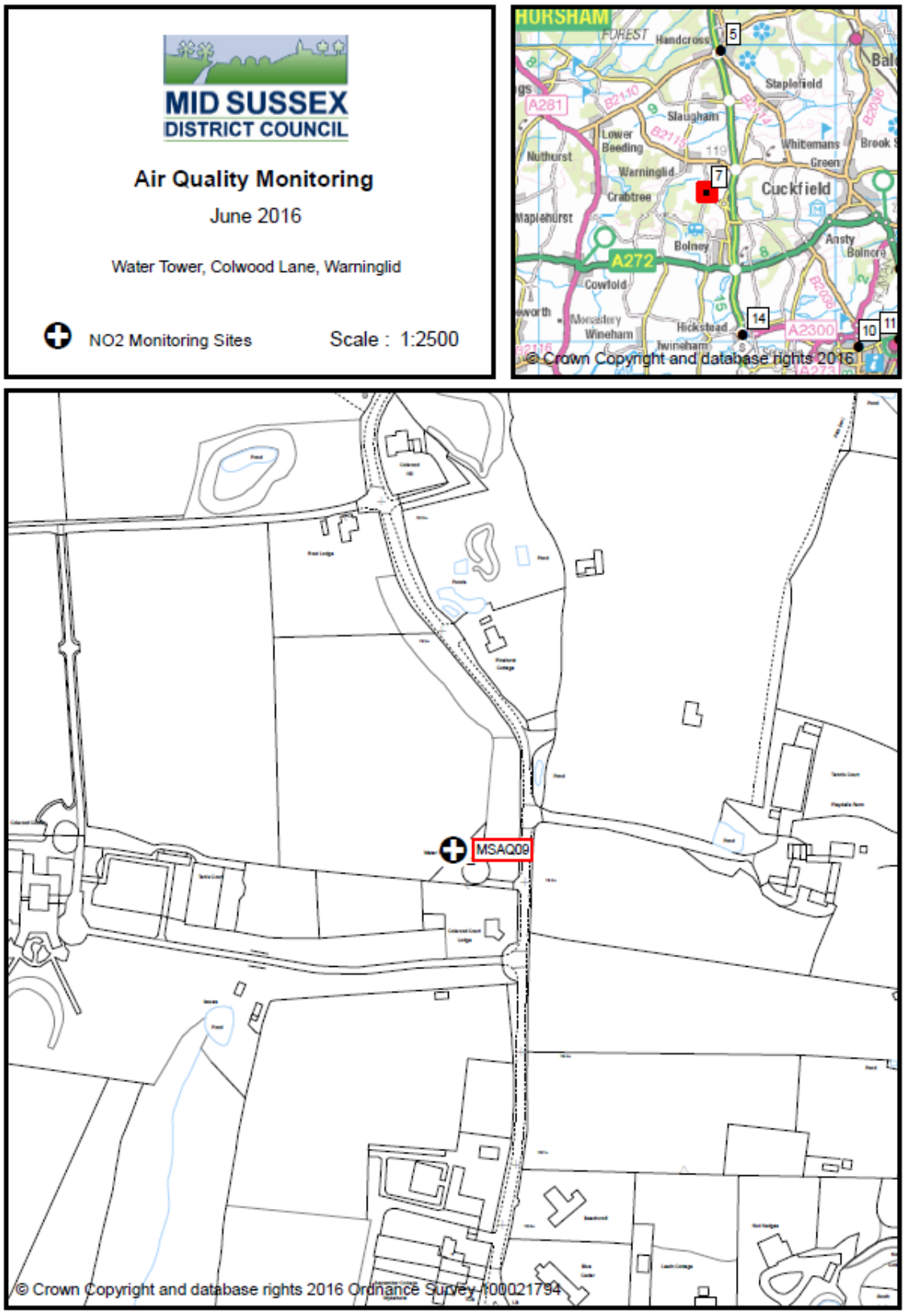


Figure 9 MSAQ10-19 and MSAQ21-24 Stonepound Crossroads, Keymer Road, Hassocks

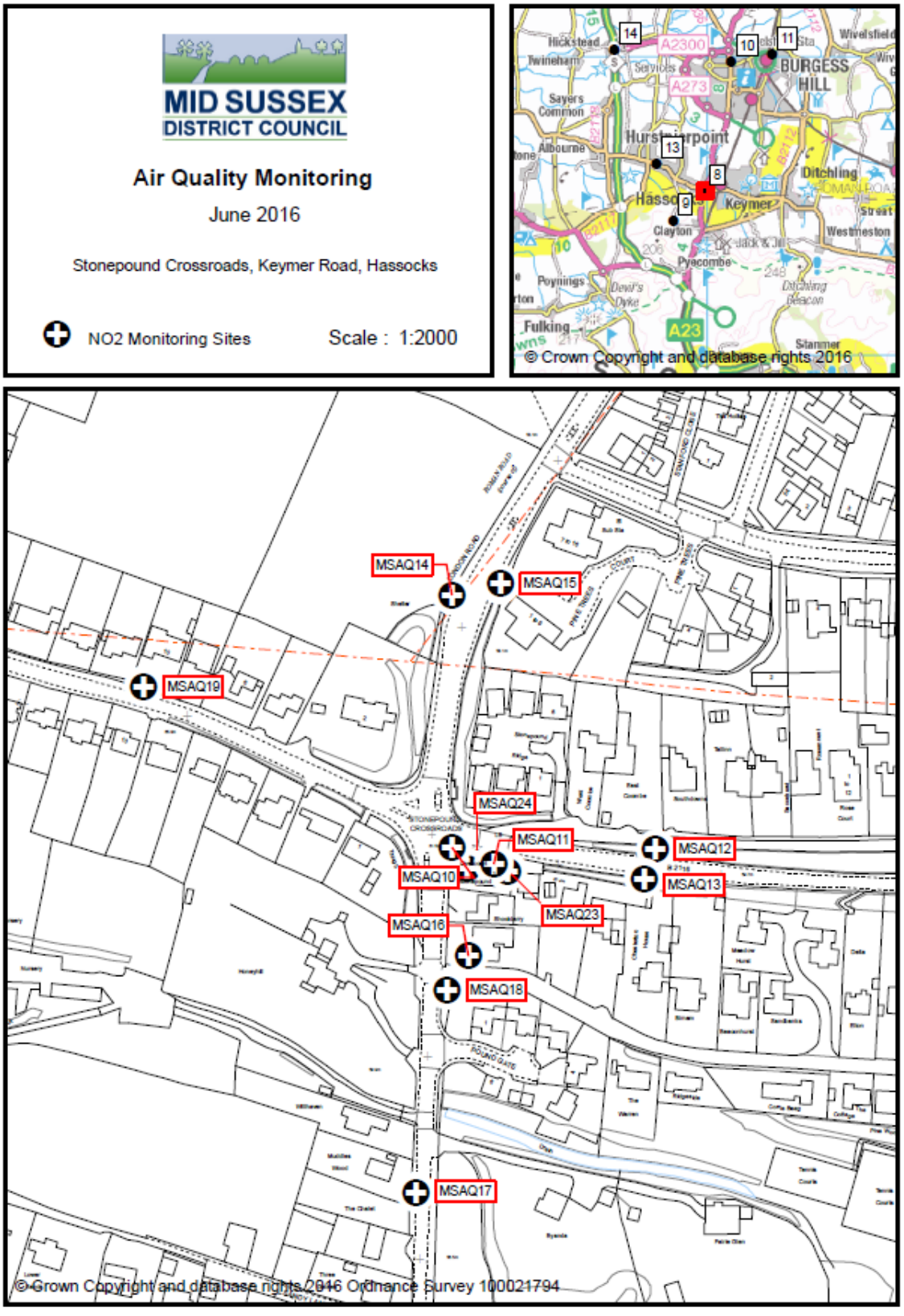


Figure 10 MSAQ20 New Way Lane, Hurstpierpoint

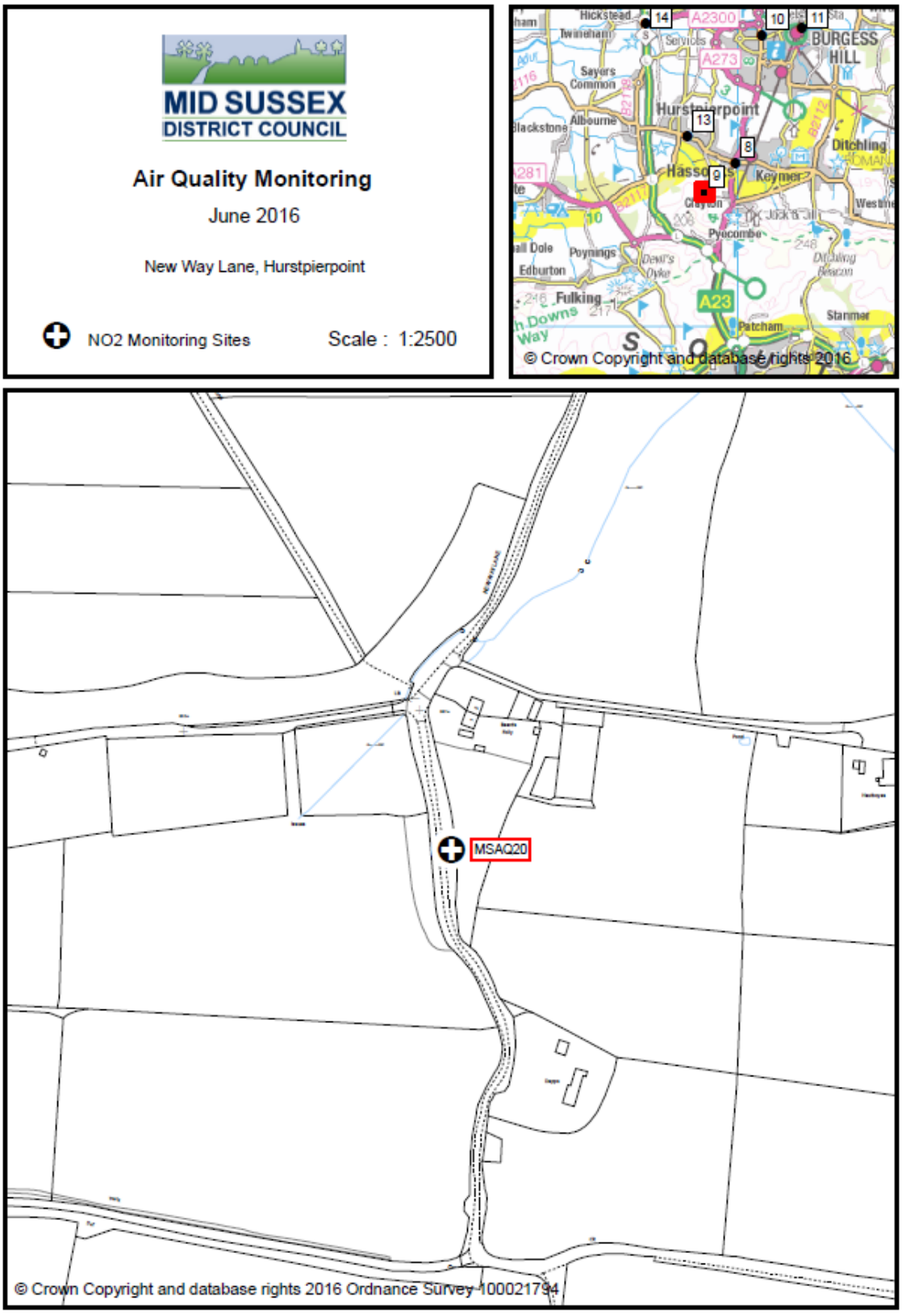


Figure 11 MSAQ21 86-88 London Road, Burgess Hill

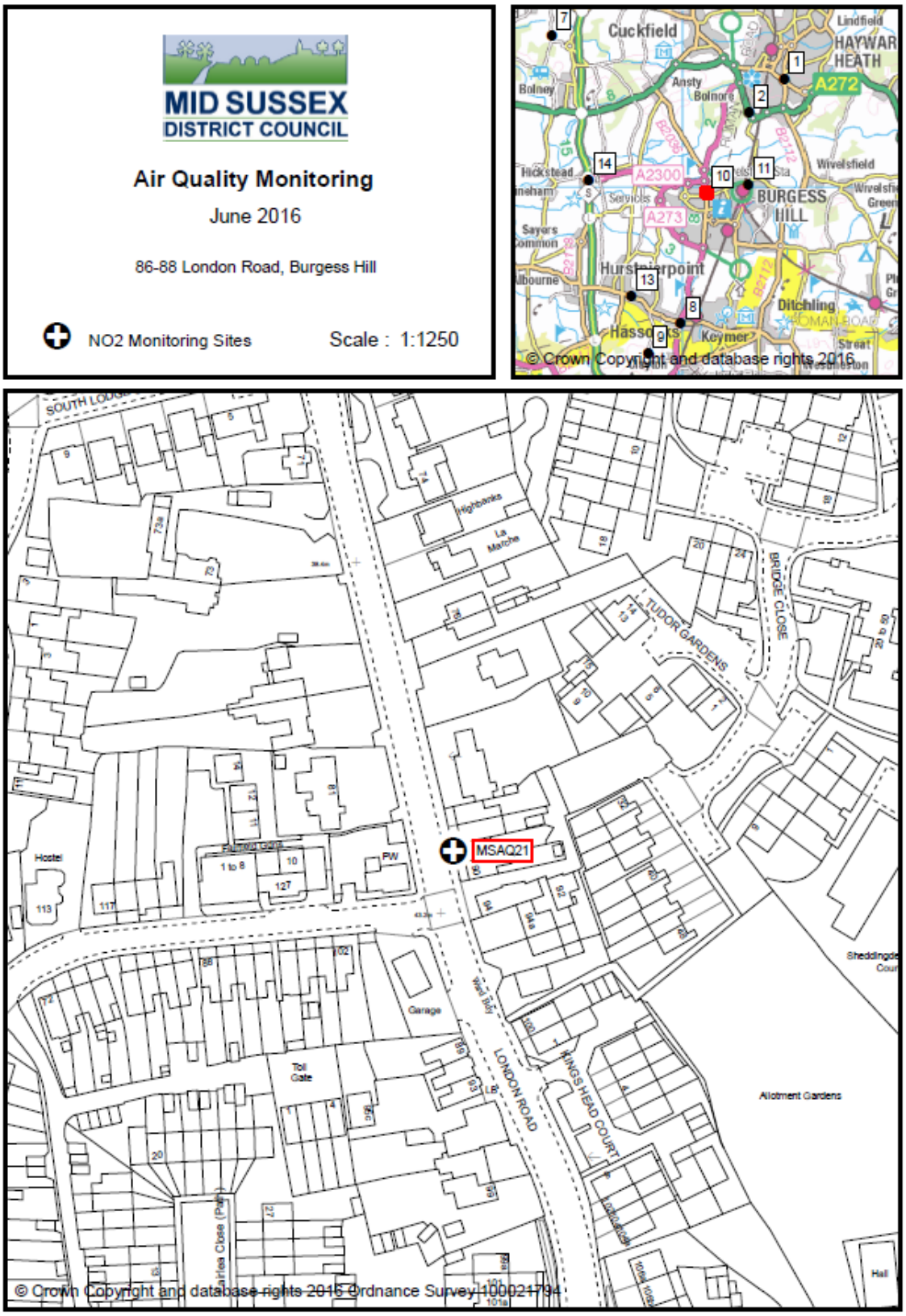


Figure 12 MSAQ22 26, Leylands Road, Burgess Hill

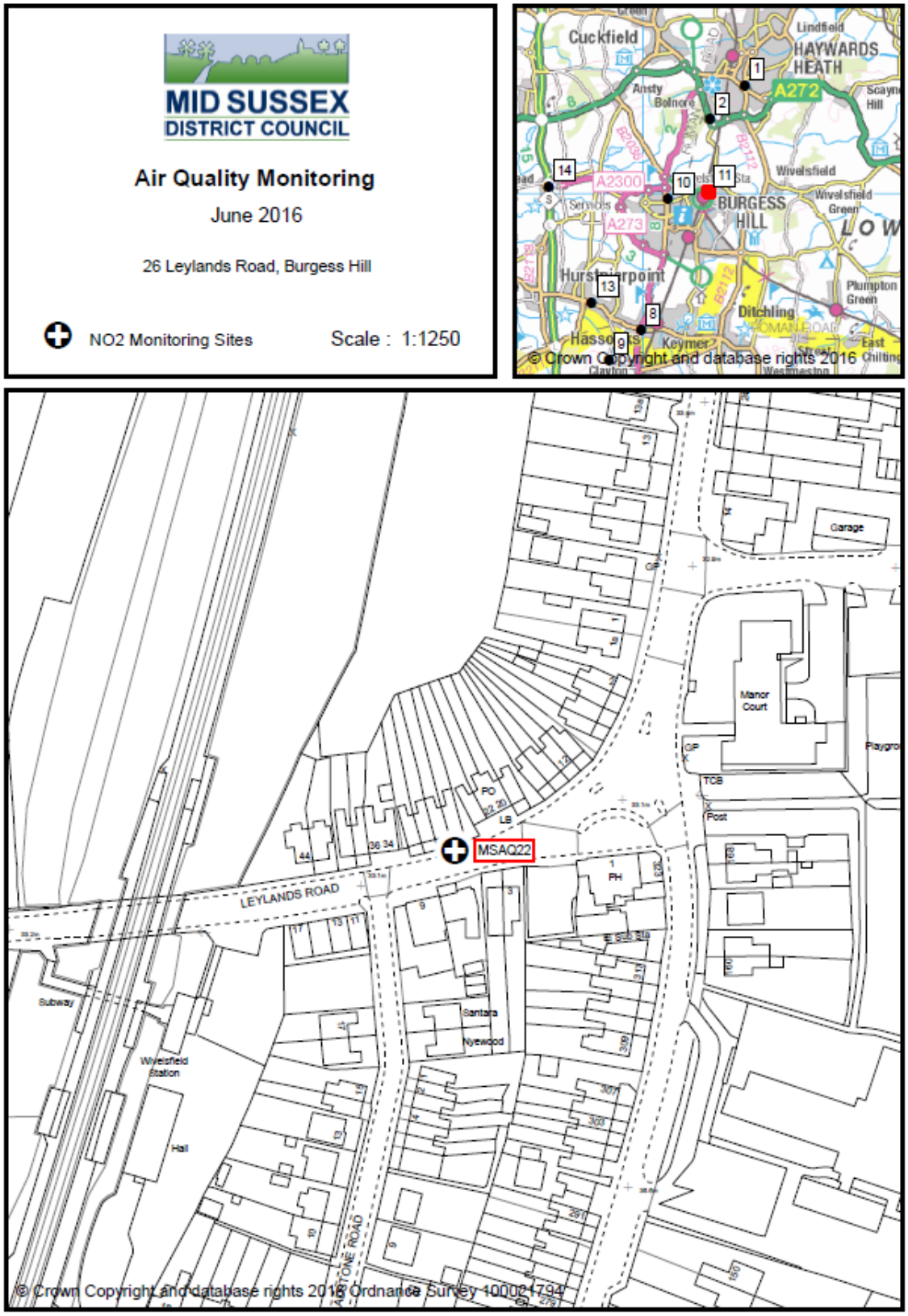


Figure 13 MSAQ25 Erica Way, Copthorne

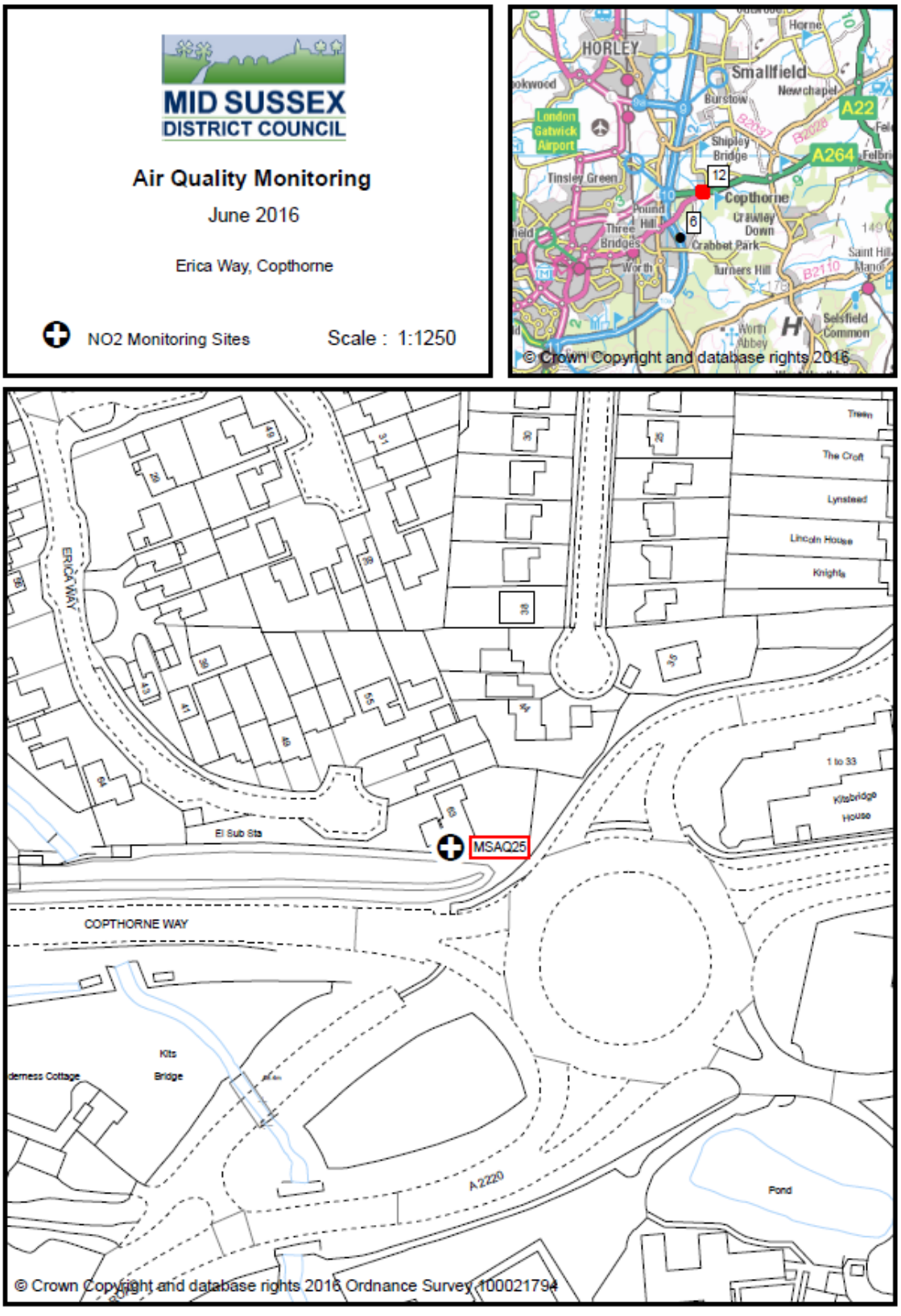


Figure 14 MSAQ26 Lamp Post 14, High Street, Hurstpierpoint

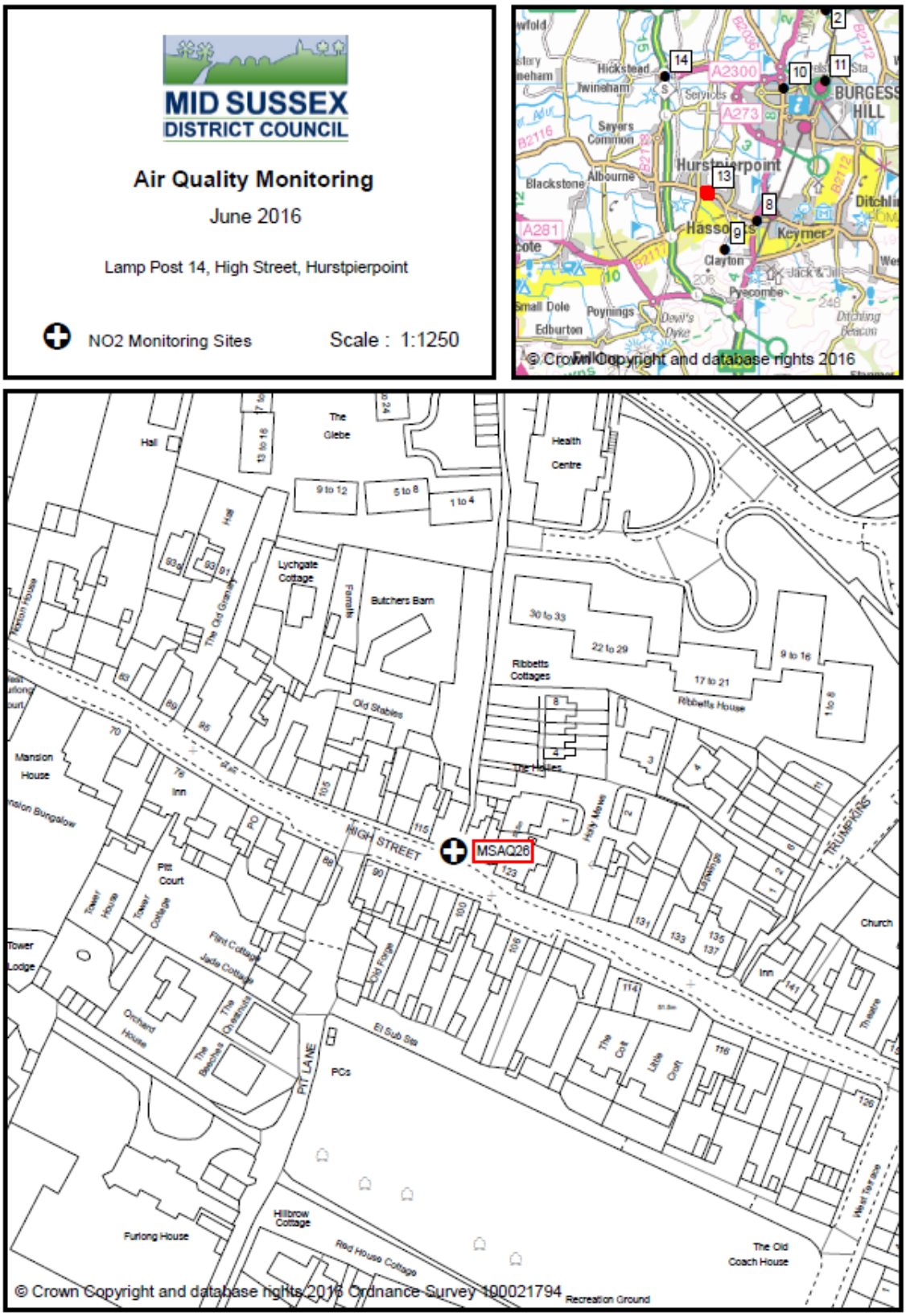
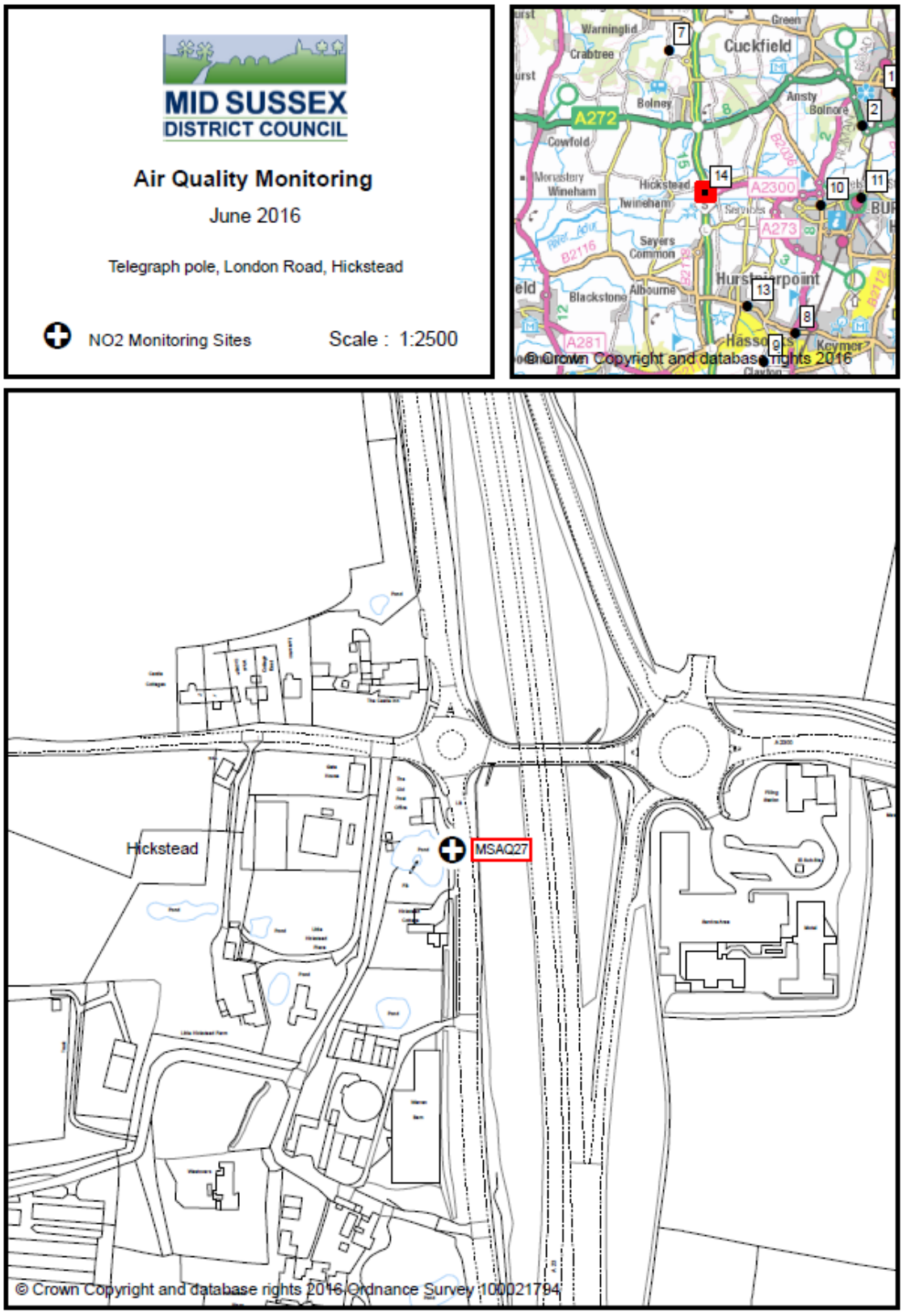


Figure 15 MSAQ27 Telegraph pole, London Road, Hickstead



Appendix E: Summary of Air Quality Objectives in England

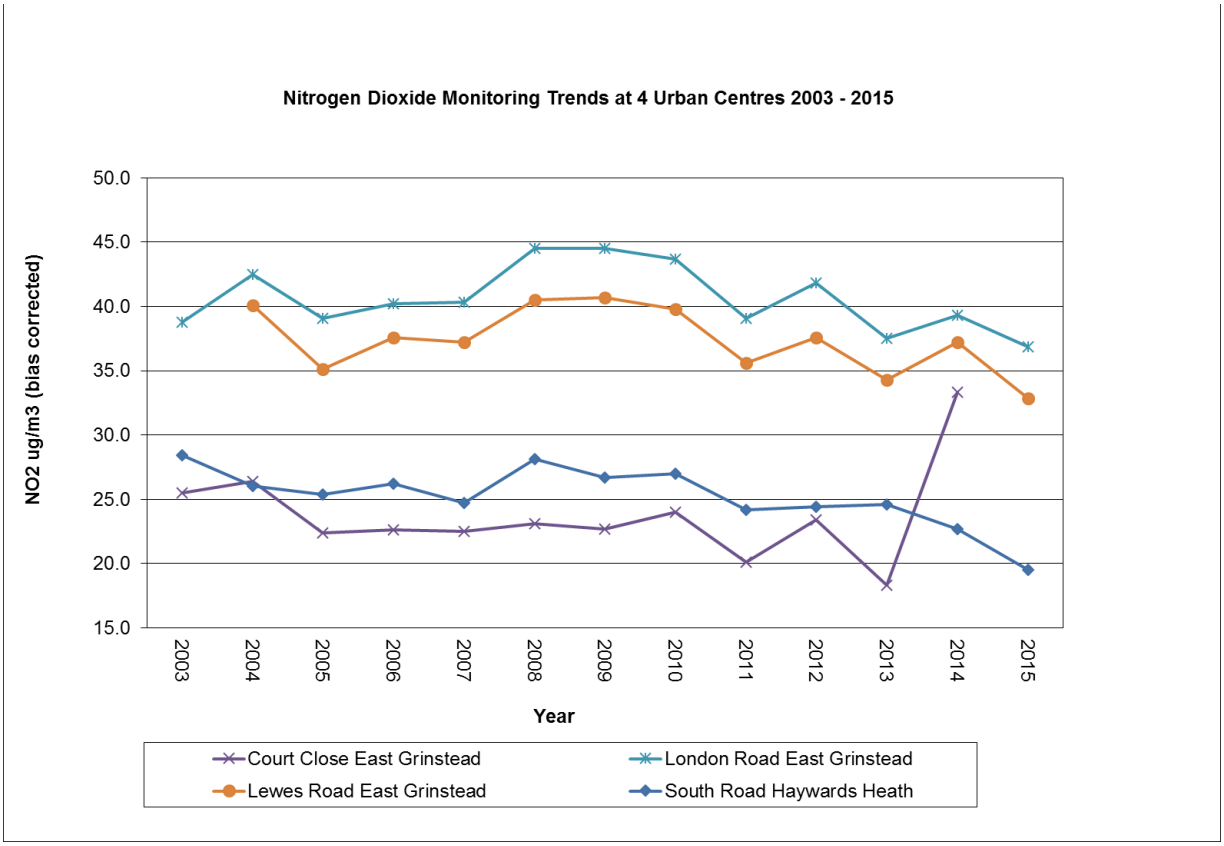
Table E.1 – Air Quality Objectives in England

Pollutant	Air Quality Objective[6]	
	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

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

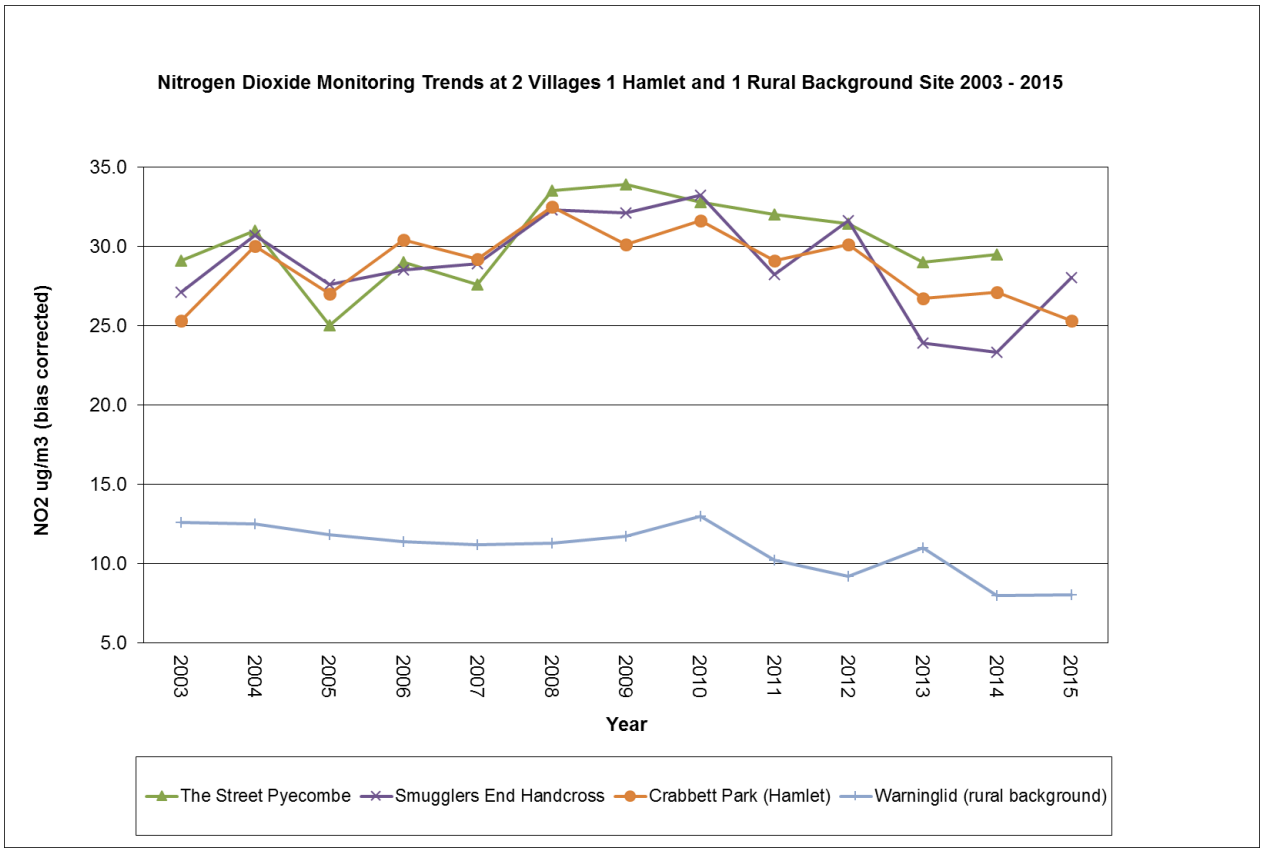
Appendix F: Trends in Annual Mean Nitrogen Dioxide Concentrations measured at Diffusion Tube Monitoring Sites

Figure 16 Annual mean concentrations (bias corrected) 2003 to 2015 of nitrogen dioxide diffusion tube measurements at four urban centre sites.



From 2005 to 2009 there has been a gradual increase in NO_2 concentrations at three of the four urban centres. The fourth, Court Close East, Grinstead, remained at a relatively consistent level. In 2010 the monitored concentrations declined slightly at two sites, London Road and Lewes Road East, Grinstead and in 2011 the concentrations at three of the sites were lower than in previous years. In 2012 concentrations increased though they were still lower than in 2010. In 2013 concentrations decreased at three of the sites. In 2014 concentrations increased at three of the four sites. In 2015 concentrations at three of the four sites decreased slightly, Court Close was retired at the end of December 2014.

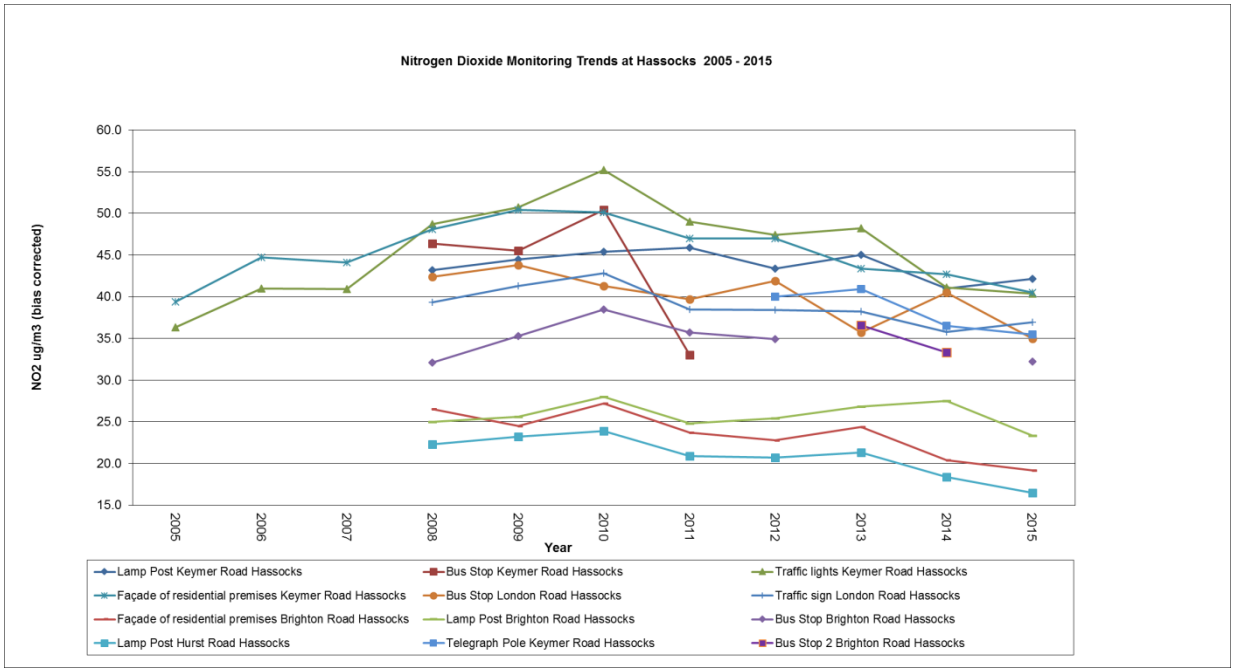
Figure 17 Annual mean concentrations (bias corrected) 2003 to 2014 of nitrogen dioxide diffusion tube measurements at two village, one hamlet and one rural background site.



From 2005 to 2009 there has been a gradual increase in NO_2 concentrations at three sites. The concentrations recorded in 2011 reduced slightly from 2010. From 2008 to 2112 there was a steady decline at the Pyecombe site. The rural background concentration declined in 2011 and 2012. Concentrations at three of the sites declined in 2013.

In 2014 the concentrations remained relatively steady. The site at Pyecombe was 'retired' at the end of 2014. The levels at Handcross increased slightly from 2014. The level measured at Crabbett Park reduced slightly whilst the rural background remained the same in 2015.

Figure 18 Annual mean concentrations (bias corrected) 2003 to 2015 of nitrogen dioxide diffusion tube measurements at Hassocks.



From 2003 to 2010 the NO_2 concentrations recorded at the traffic lights and at the façade in Keymer Road increased year on year, and then reduced slightly from 2011 to 2013. All sites showed an overall increase in concentrations from 2008 to 2010 and a slight decline from 2011 to 2013. The Bus stop at London Road Hassocks showed a sharp decline in measured concentrations in 2013.

The Bus stop site at Keymer Road ceased to be used due to consistent vandalism in January 2012. An alternative site (located on a telegraph pole) was set up slightly further east. In 2013 the bus stop post at Brighton Road Hassocks was removed and so the site was moved some 14m south to an existing bus stop.

Four of the sites are above the national air quality objective in 2014. Concentrations reduced slightly at all the sites in 2014 except at the bus stop in London Road and the lamp post in Brighton Road.

In 2015 seven of the nine sites declined slightly whilst two sites increased slightly since 2014. Three monitoring sites remain above the NO_2 objective levels of 40µg/m³, whilst an additional two sites remain within 10% of the objective. The 2015 measurements at the location of relevant exposure (MSAQ11 - Over Court, Northern façade, Keymer Road, Hassocks) remained above the objective level at 40.5µg/m³.

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Air quality Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
EIA	Environmental Impact Assessment
ES	Environmental Statement
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

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