

2014 Air Quality Progress Report for Mid Sussex District Council

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

Date (July, 2014)



Mid Sussex District Council

Local Authority	Mid Sussex District Council
Department	Environmental Health
Address	Oaklands Oaklands Road Haywards Heath West Sussex RH16 1SS
Telephone	01444 477292
e-mail	pollution@midsussex.gov.uk
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Executive Summary

Diffusion tube monitoring data for January to December 2013 has been used to assess compliance with the national air quality objectives.

Mid Sussex do not have any automatic monitoring sites.

Nitrogen dioxide (NO₂)

The 2013 annual means were below the nitrogen dioxide (NO₂) objective at 20 monitoring sites.

The objective was exceeded at 4 locations, all in Hassocks. Two of the sites in Hassocks have relevant exposure i.e. residential premises within 15m of a monitoring site. Both are within the Air Quality Management Area (AQMA) declared in March 2012 where an Action Plan is being implemented

Particulate matter (PM₁₀)

No further action required.

Sulphur dioxide

No further action required.

Benzene

No further action required.

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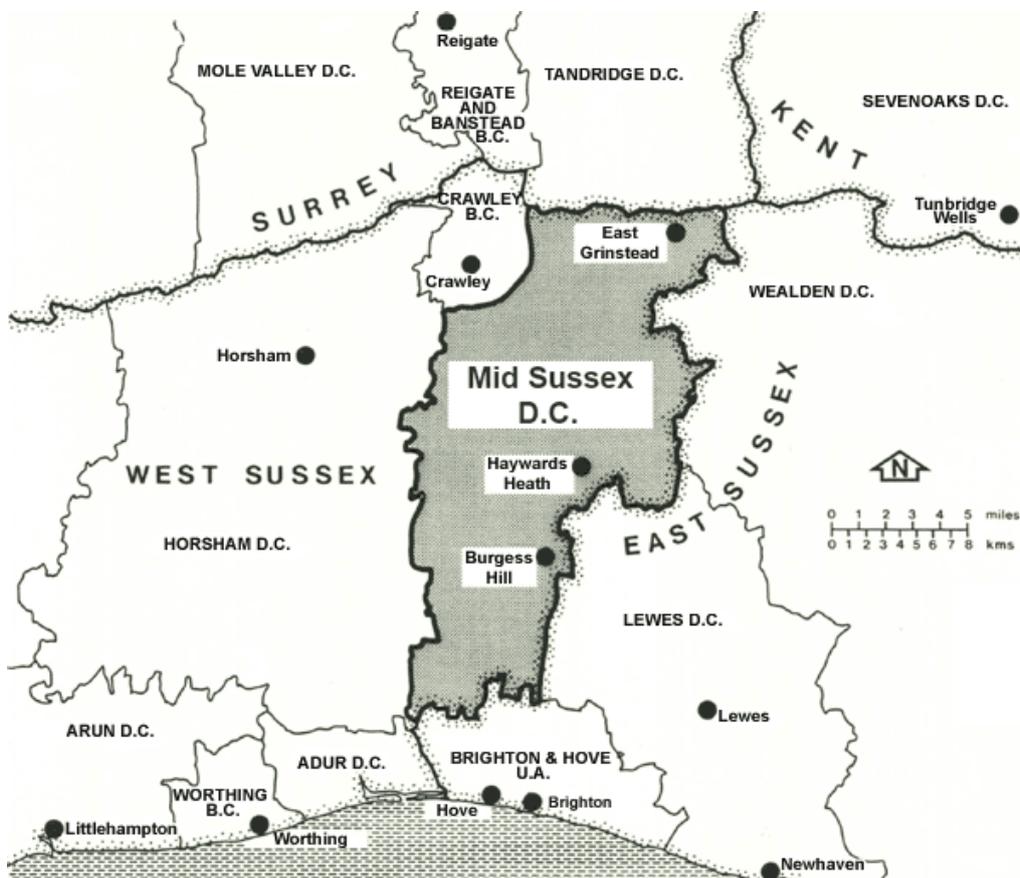
1 Introduction

1.1 Description of Local Authority Area

Mid Sussex District Council is located within the County of West Sussex. More than half the area is designated as an Area of Outstanding Natural Beauty. It lies on the eastern edge of the county and shares boundaries with East Sussex to the east, Surrey to the north and Brighton and Hove to the south.

Mid Sussex covers an area of some 33,400 hectares (approximately 128 square miles, 334.02 square kilometres) and includes the three main towns of East Grinstead, Burgess Hill and Haywards Heath in a predominantly rural area, in which there are some 25 villages and many small hamlets.

The District currently has a population of approximately 139,000. Sixty percent of the population live in the three main towns with the remaining 40% living in the smaller villages and rural areas. It is well served by transport links to London, Gatwick Airport, the M25, the coast and Europe.



1.2 Purpose of Progress Report

This report fulfils the requirements of the Local Air Quality Management (LAQM) process as set out in Part IV of the Environment Act (1995), the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 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 exceedences are considered likely, the local authority must then 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.

Progress Reports are required in the intervening years between the three-yearly Updating and Screening Assessment reports. Their purpose is to maintain continuity in the LAQM process.

They are not intended to be as detailed as Updating and Screening Assessment Reports, or to require as much effort. However, if the Progress Report identifies the risk of exceedence of an Air Quality Objective, the Local Authority (LA) should undertake a Detailed Assessment immediately, and not wait until the next round of Review and Assessment.

1.3 Air Quality Objectives

The air quality objectives applicable to LAQM in **England** are set out in the Air Quality (England) Regulations 2000 (SI 928), The Air Quality (England) (Amendment) Regulations 2002 (SI 3043), and are shown in Table 1.1. This table shows the objectives in units of microgrammes per cubic metre $\mu\text{g}/\text{m}^3$ (milligrammes per cubic metre, mg/m^3 for carbon monoxide) with the number of exceedences in each year that are permitted (where applicable).

Table 1.1 Air Quality Objectives included in Regulations for the purpose of LAQM in England

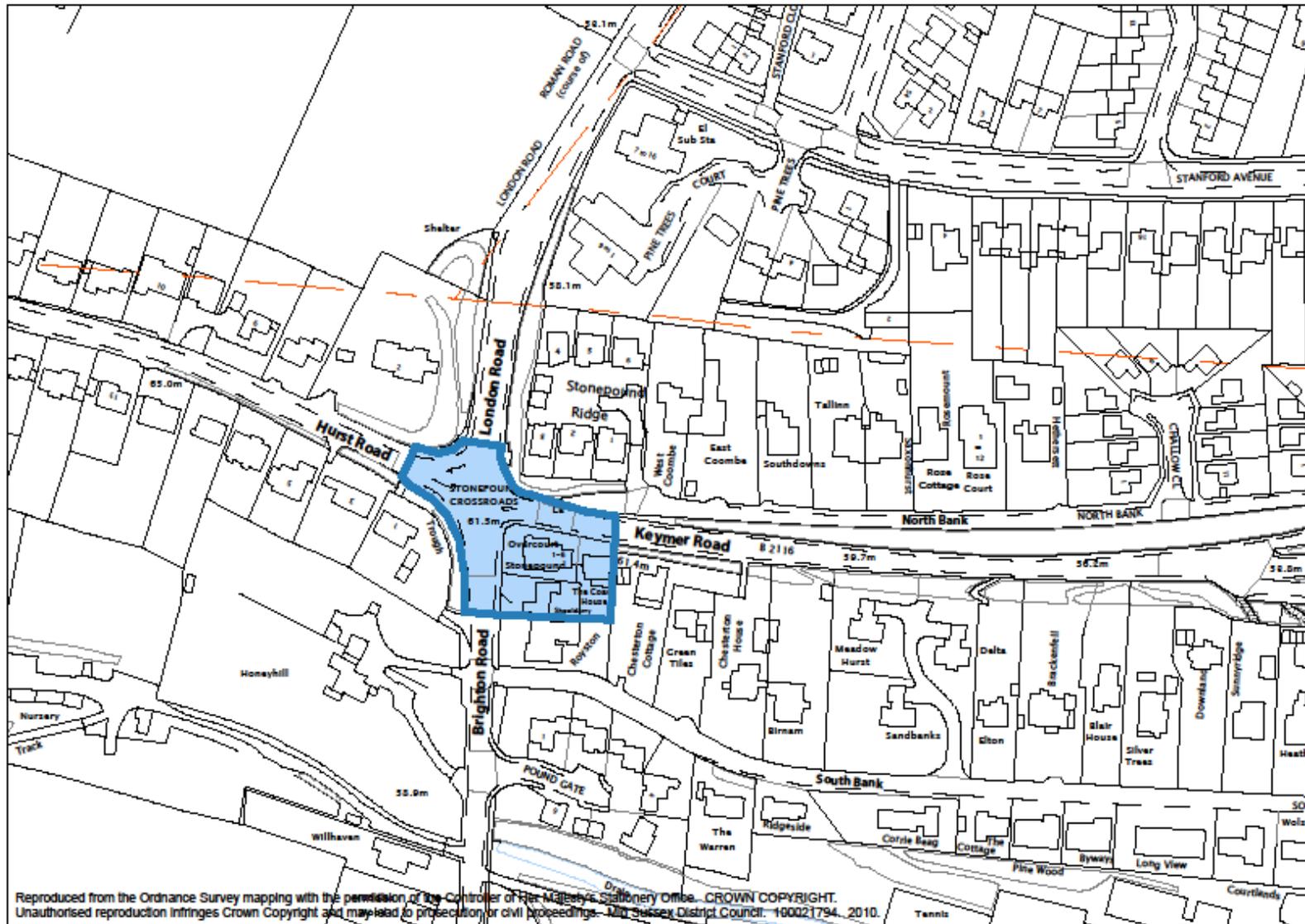
Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
	5.00 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2010
1,3-Butadiene	2.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
Carbon monoxide	10 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.50 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2004
	0.25 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2008
Nitrogen dioxide	200 $\mu\text{g}/\text{m}^3$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2005
Particulate Matter (PM ₁₀) (gravimetric)	50 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2004
Sulphur dioxide	350 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

1.4 Summary of Previous Review and Assessments

Below is a summary of the previous review and assessments undertaken by Mid Sussex District Council

Previous Review /Assessment	Date	Exceedences	AQMA's Declared	Outcome
Stage 1 Review & Assessment Report	Dec 1998	None	None	
Stage 2 Review & Assessment Report	June 2000	None	None	
Updating & Screening Assessment 2003	April 2003	None	None	
Air Quality Progress Report 2004	April 2004	None	None	
Air Quality Progress Report 2005	April 2005	None	None	
Updating & Screening Assessment 2006	April 2006	None	None	
Air Quality Progress Report 2007	April 2007	None	None	
Air Quality Progress Report 2008	April 2008	NO ₂ at 2 sites	None	Extra diffusion tubes to be installed. Detailed Assessment required for NO ₂
Updating & Screening Assessment 2009	May 2009	NO ₂ at 5 sites	None	Detailed Assessment required for NO ₂
Air Quality Progress Report 2010	May 2010	NO ₂ at 6 sites	AQMA to be declared	Detailed Assessment completed for NO ₂
Detailed Assessment 2011	May 2011	NO ₂ at 6 sites	AQMA Declared	Action Plan to be completed
Updating & Screening Assessment 2012	July 2012	NO ₂ at 3 sites	AQMA Declared	Action Plan completed and out for consultation
Air Quality Progress Report 2013	April 2013	NO ₂ at 4 sites	None	Action Plan in place

Figure 1.1 Map of the Air Quality Management Area at Stonepound Crossroads in Hassocks



2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

Mid Sussex do not have any automatic monitoring sites.

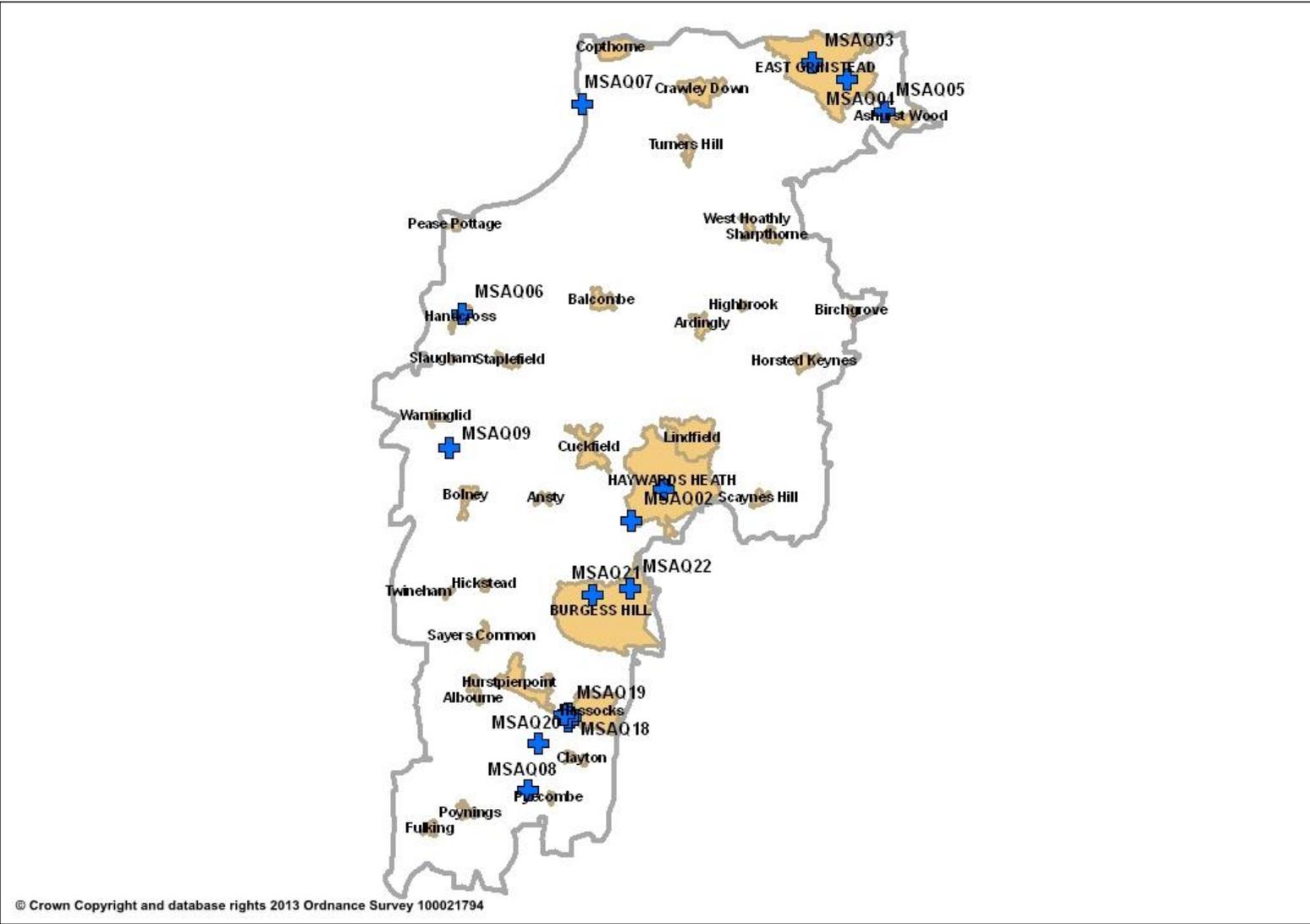
2.1.2 Non-Automatic Monitoring Sites

Across the District there are 24 locations where nitrogen dioxide (NO₂) diffusion tubes are located. See Figure 2.1 for locations and Table 2.1 for details of the monitoring sites.

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 trilocated diffusion tubes at Stonepound located on the traffic lights, were 'divided' in January 2013 to provide an additional 2 monitoring sites at Overcourt whilst leaving one located on the traffic lights. Trilocated tubes are still present at Overcourt on the Northern Façade.

Results at Stonepound for 2013 indicate there are four sites which exceed the annual mean air quality objective for nitrogen dioxide, 2 of which have relevant exposure.

Figure 2.1 Maps of non-automatic monitoring sites in Mid Sussex

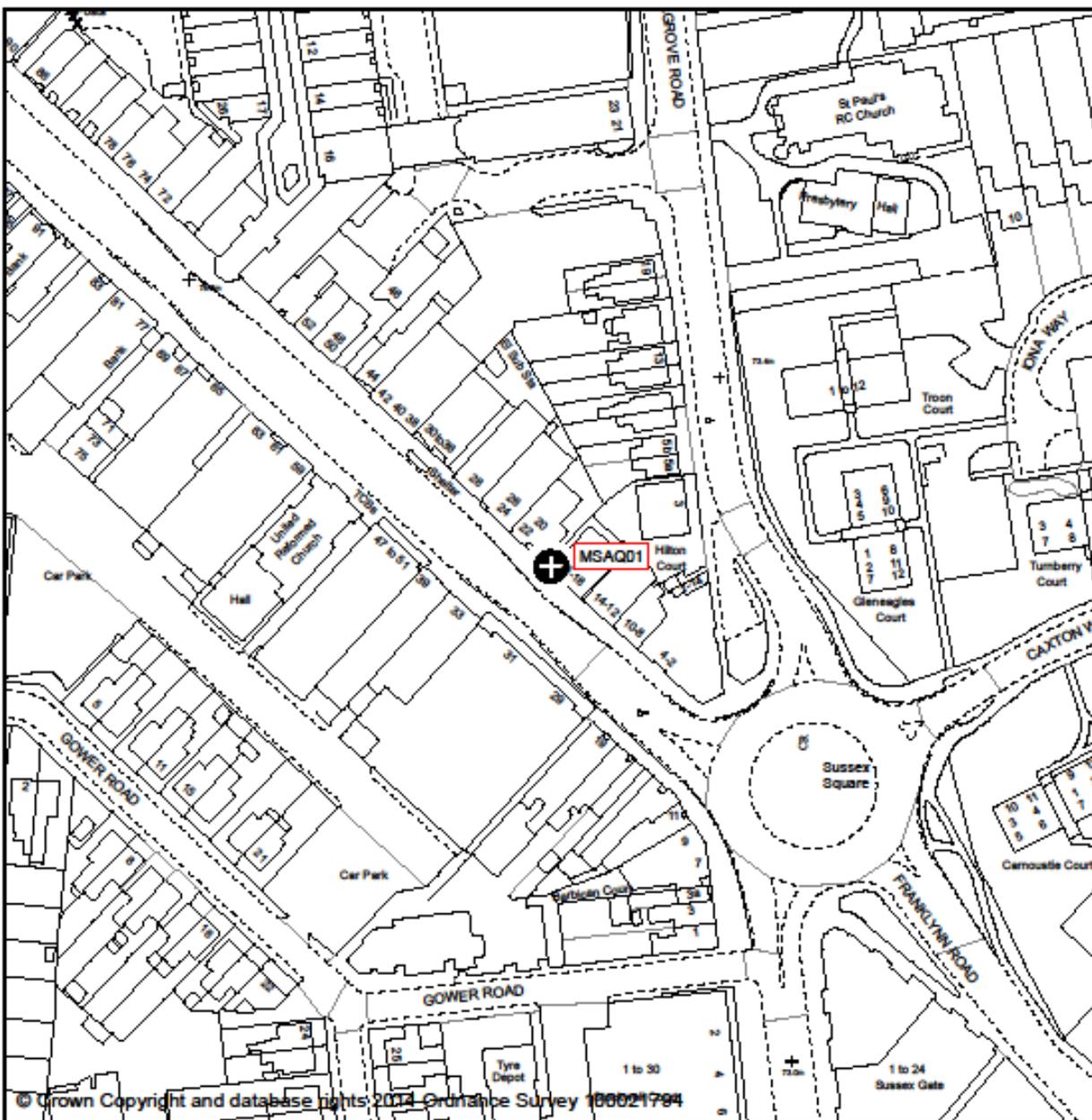
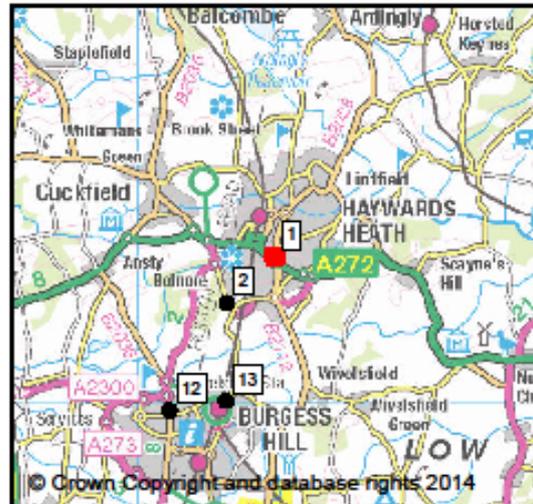




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Air Quality Monitoring
July 2014
Site No. 1
South Road, Haywards Heath, adjacent The Cook Shop

 NO2 Monitoring Sites Scale : 1:1,250

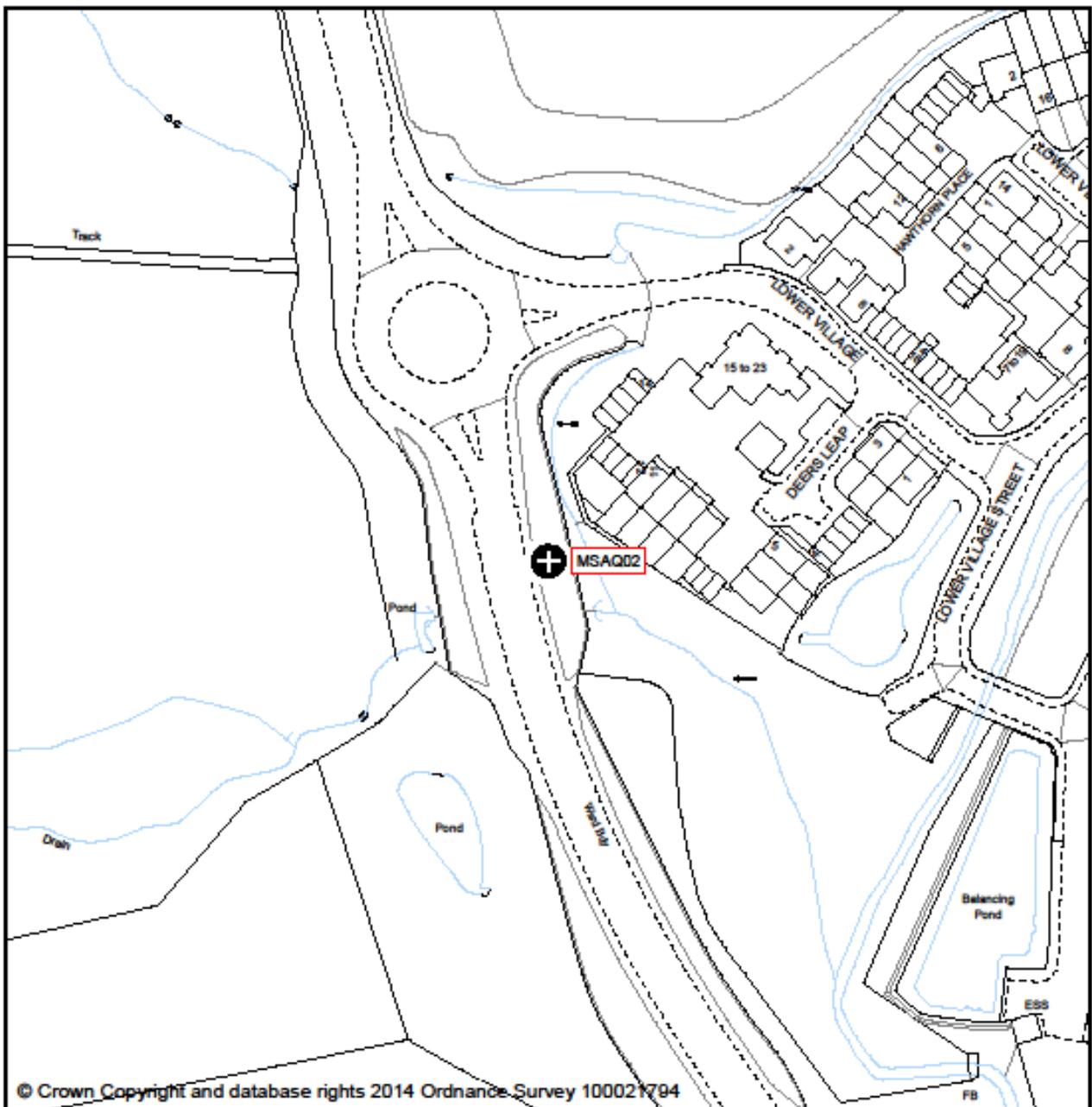
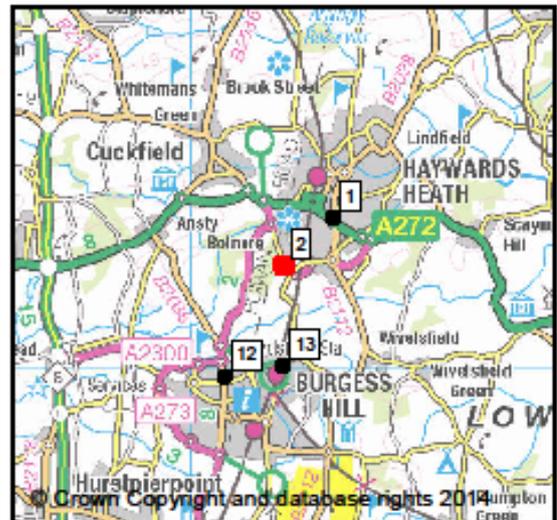




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Air Quality Monitoring
July 2014
Site No. 2
Lower Village roundabout, Traunstein Way, Haywards Heath

 NO2 Monitoring Sites Scale : 1:1,250

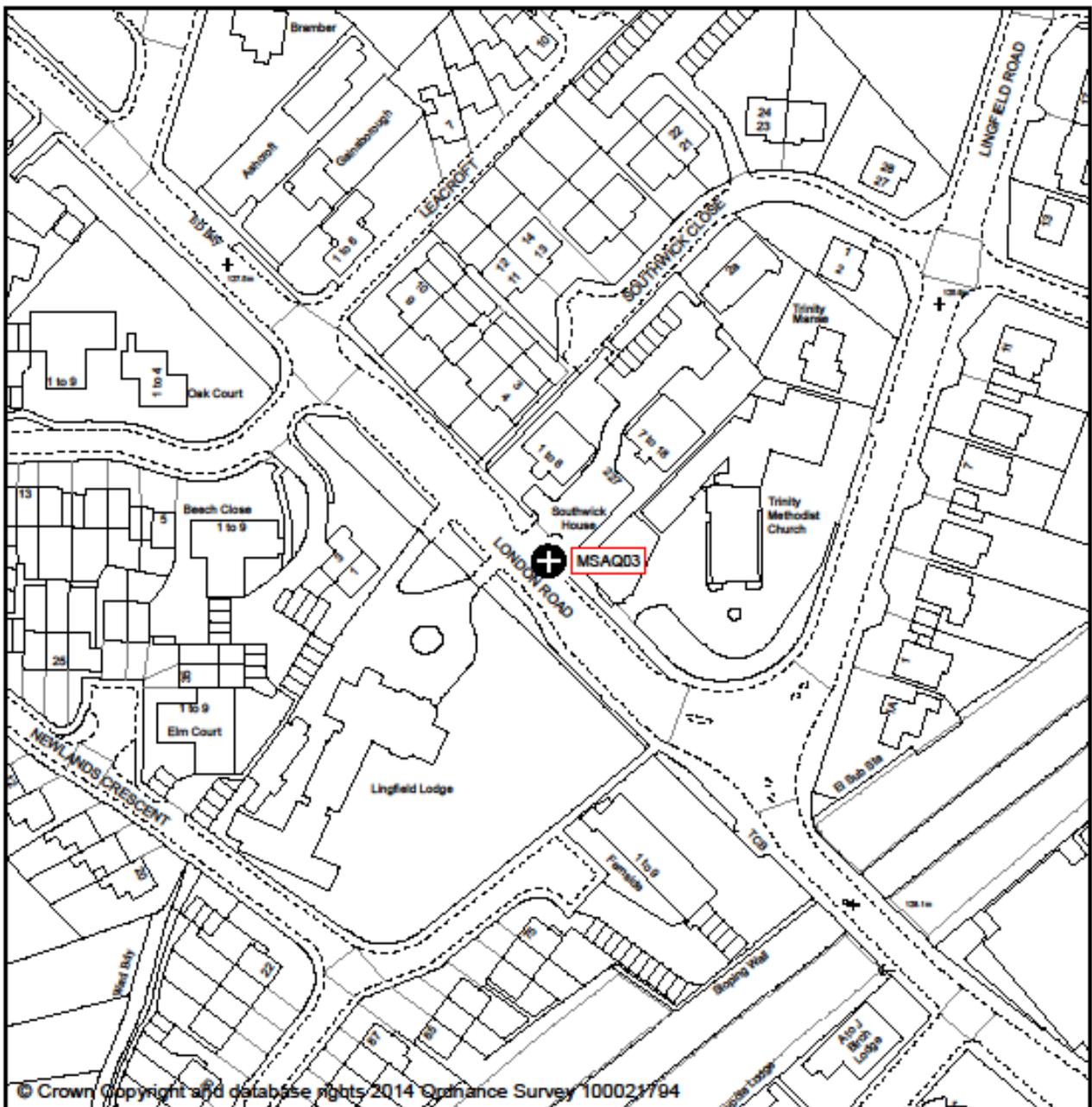
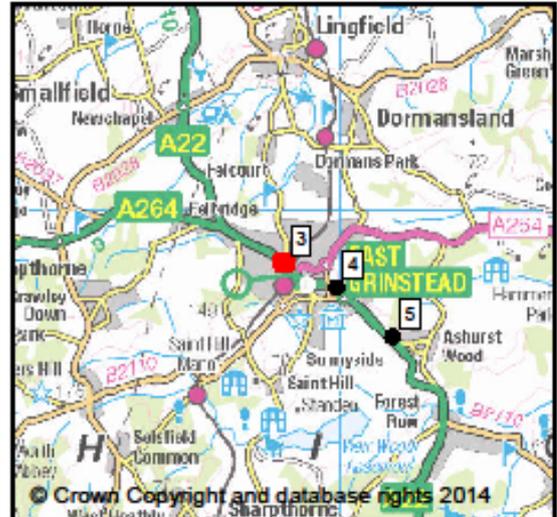




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Air Quality Monitoring
July 2014
Site No. 3
London Road, East Grinstead, adjacent Southwick House

 NO2 Monitoring Sites Scale : 1:1,250

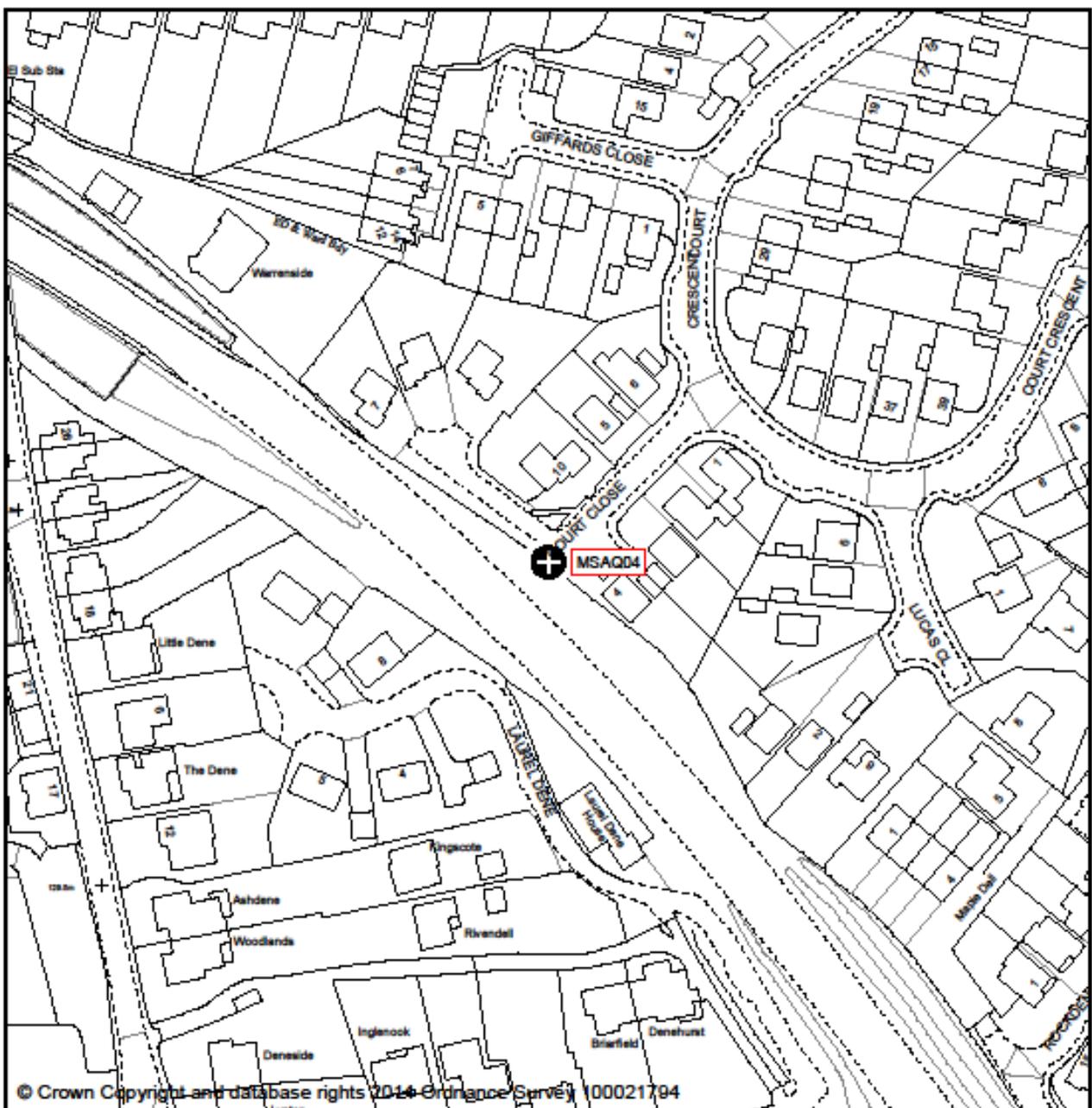
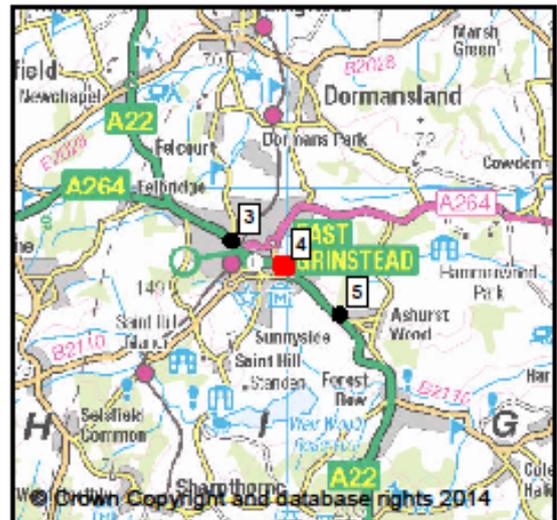




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Air Quality Monitoring
July 2014
Site No. 4
Court Close, East Grinstead

 NO2 Monitoring Sites Scale : 1:1,250

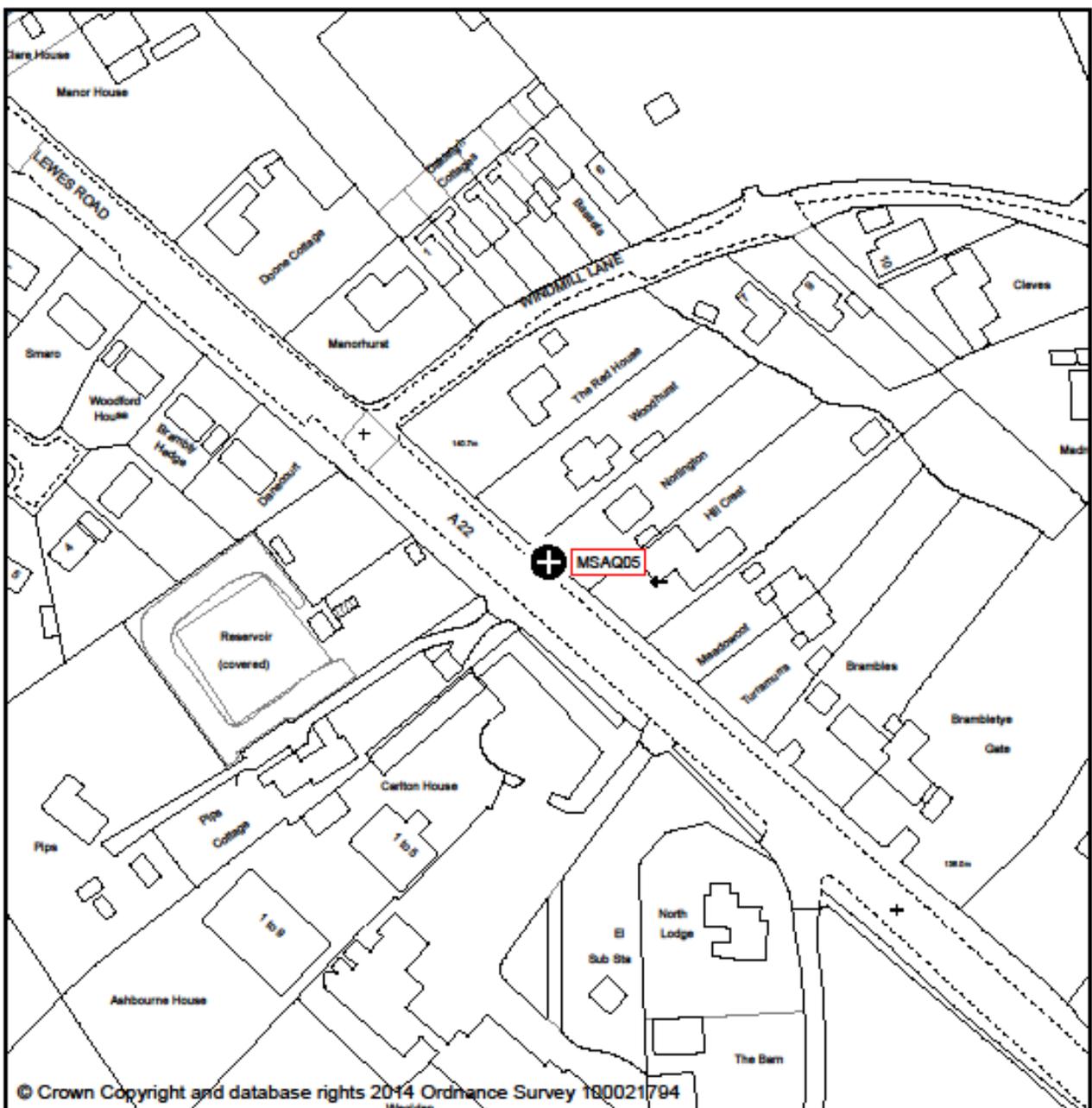
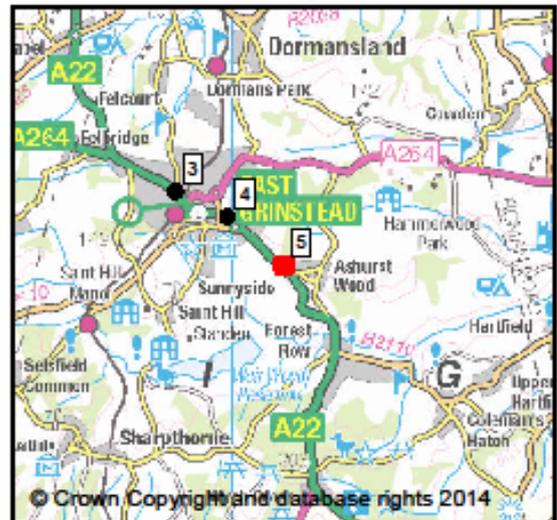




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Air Quality Monitoring
July 2014
Site No. 5
Lewes Road, East Grinstead

 NO2 Monitoring Sites Scale : 1:1,250

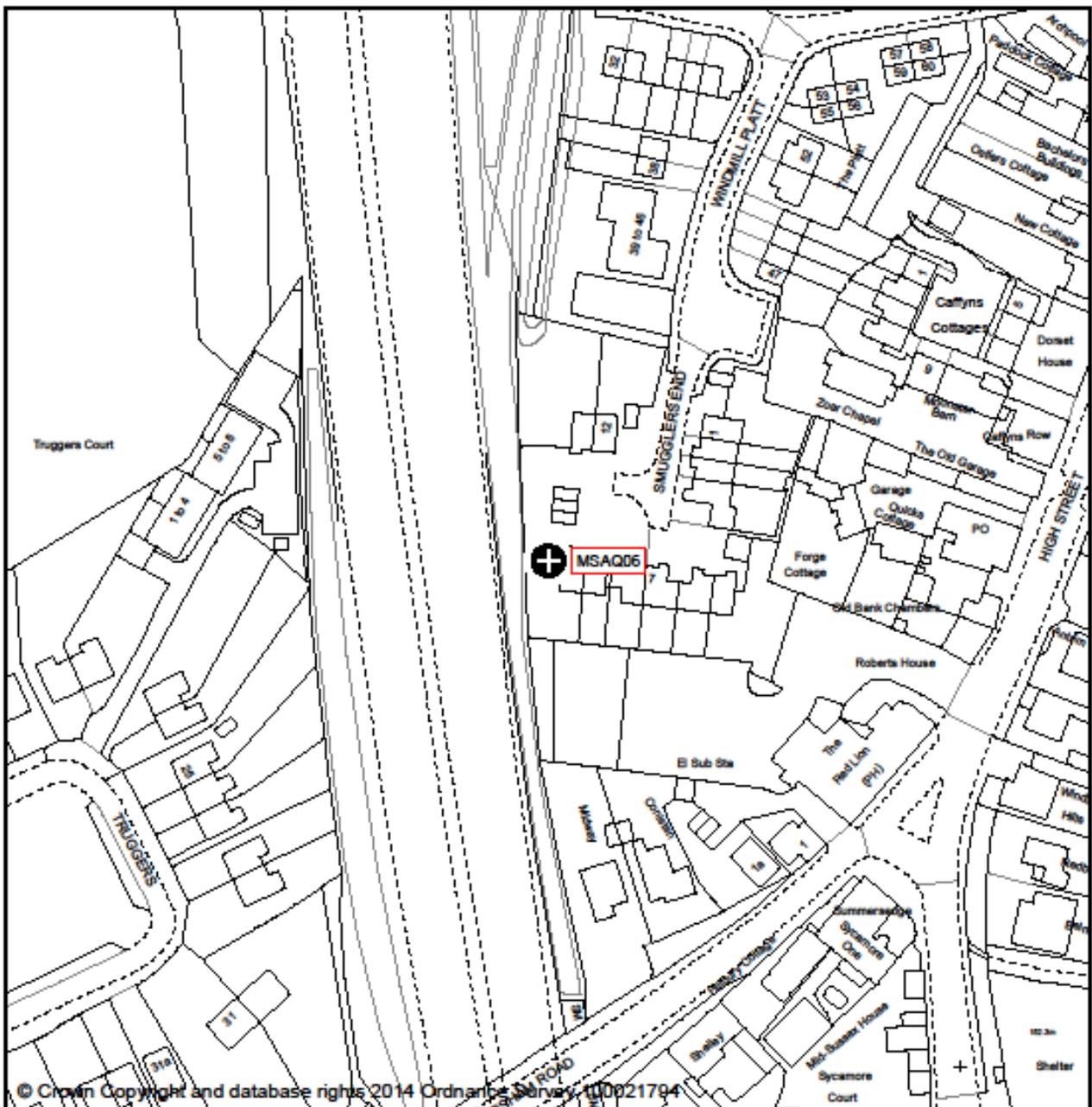




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Air Quality Monitoring
July 2014
Site No. 6
Smugglers End, Handcross

 NO2 Monitoring Sites Scale : 1:1,250

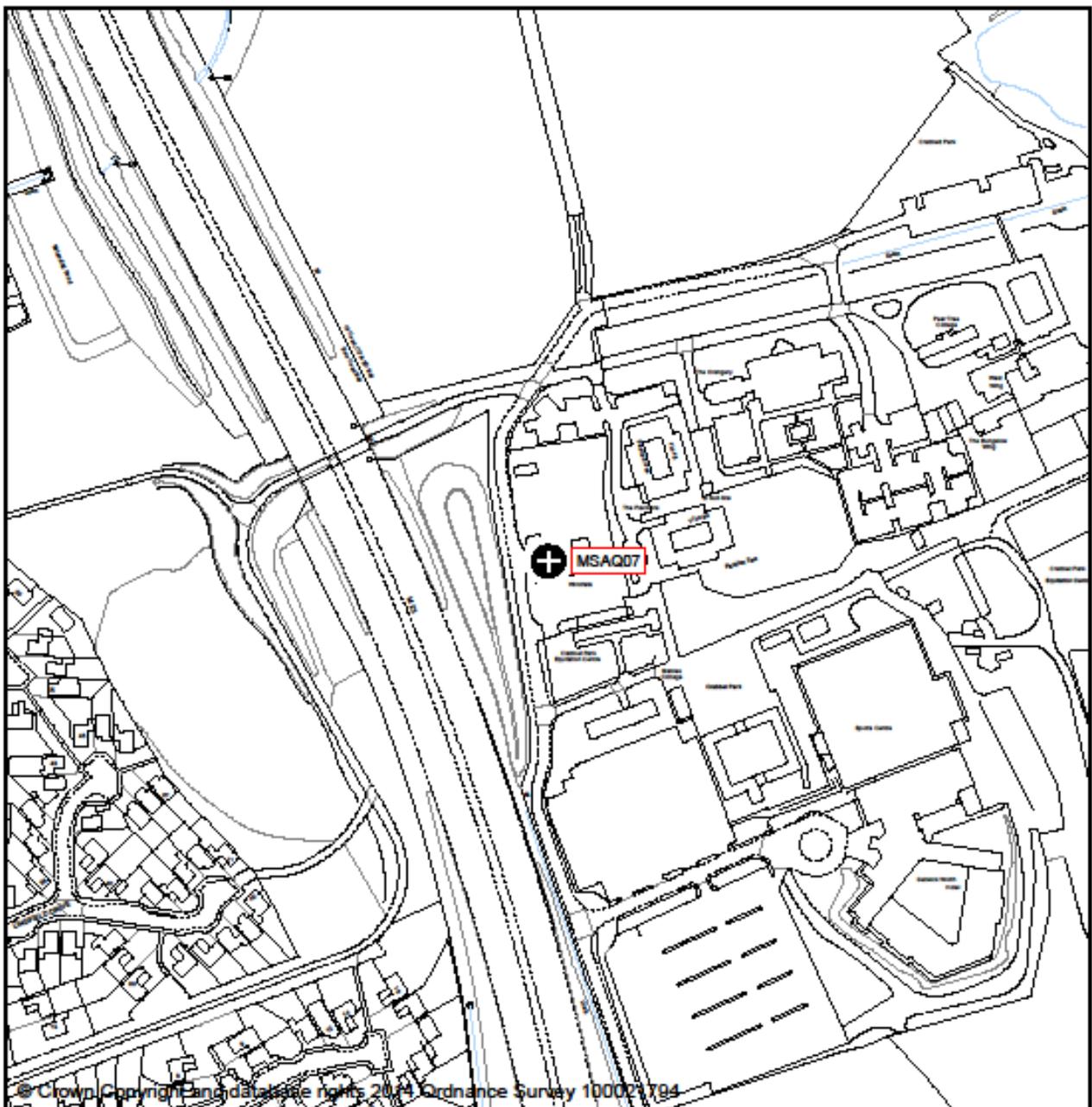
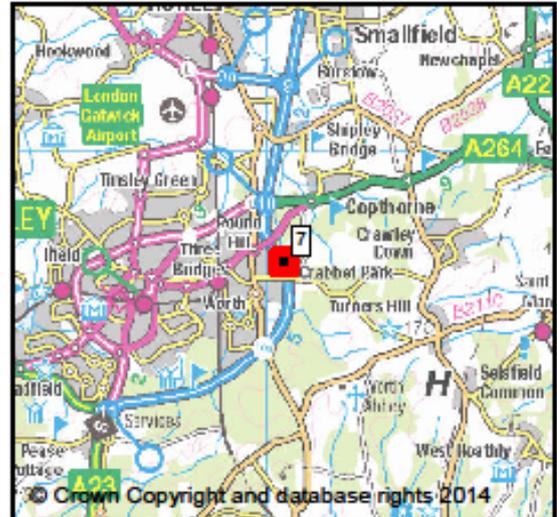




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Air Quality Monitoring
July 2014
Site No. 7
Crabbet Park, Worth

 NO2 Monitoring Sites Scale : 1:2,500

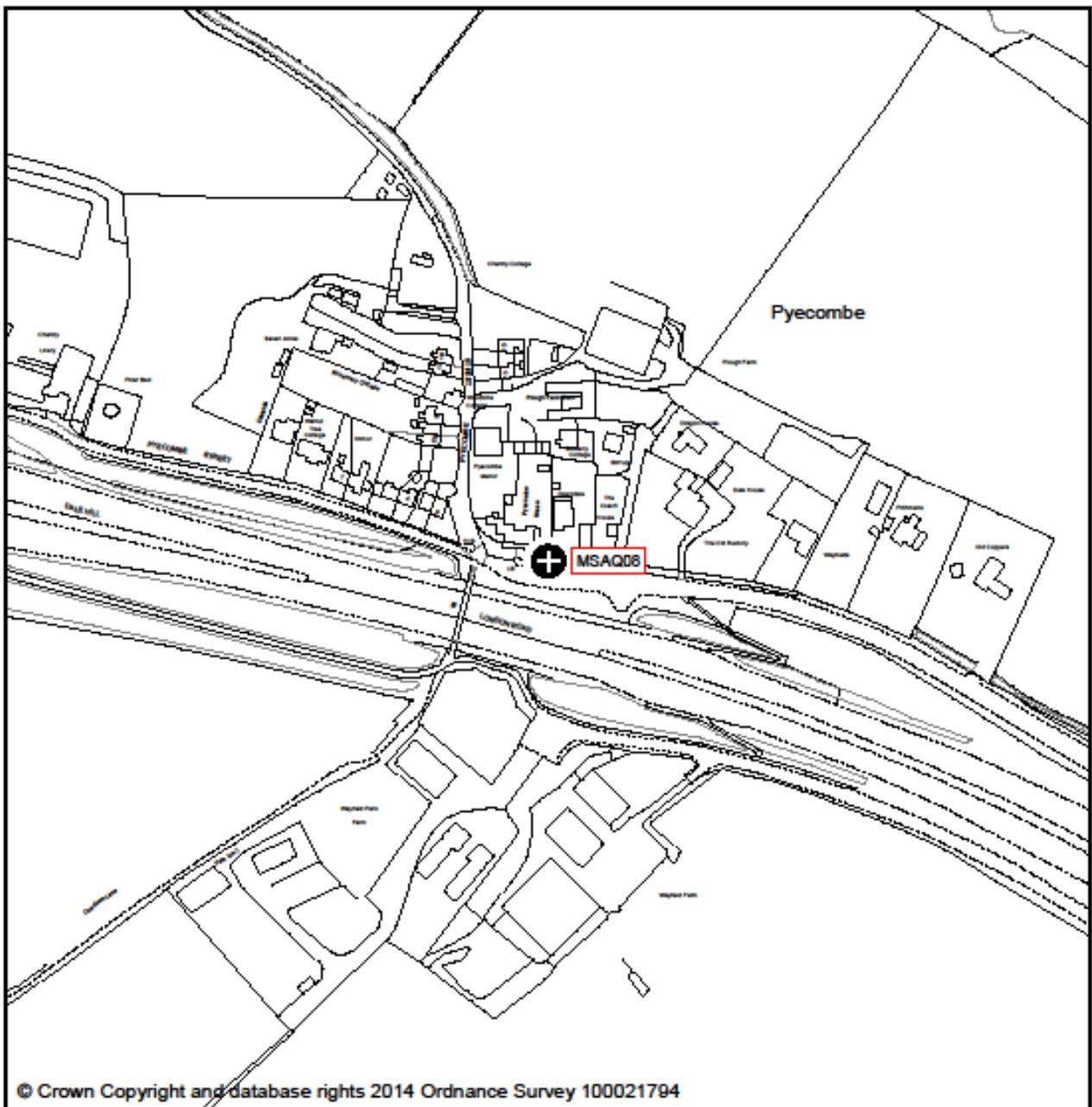




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Air Quality Monitoring
July 2014
Site No. 8
Pyecombe Street, Pyecombe

 NO2 Monitoring Sites Scale : 1:2,500





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Air Quality Monitoring
July 2014
Site No. 9
Water Tower, Colwood Lane, Warminglid

 NO2 Monitoring Sites Scale : 1:2,500

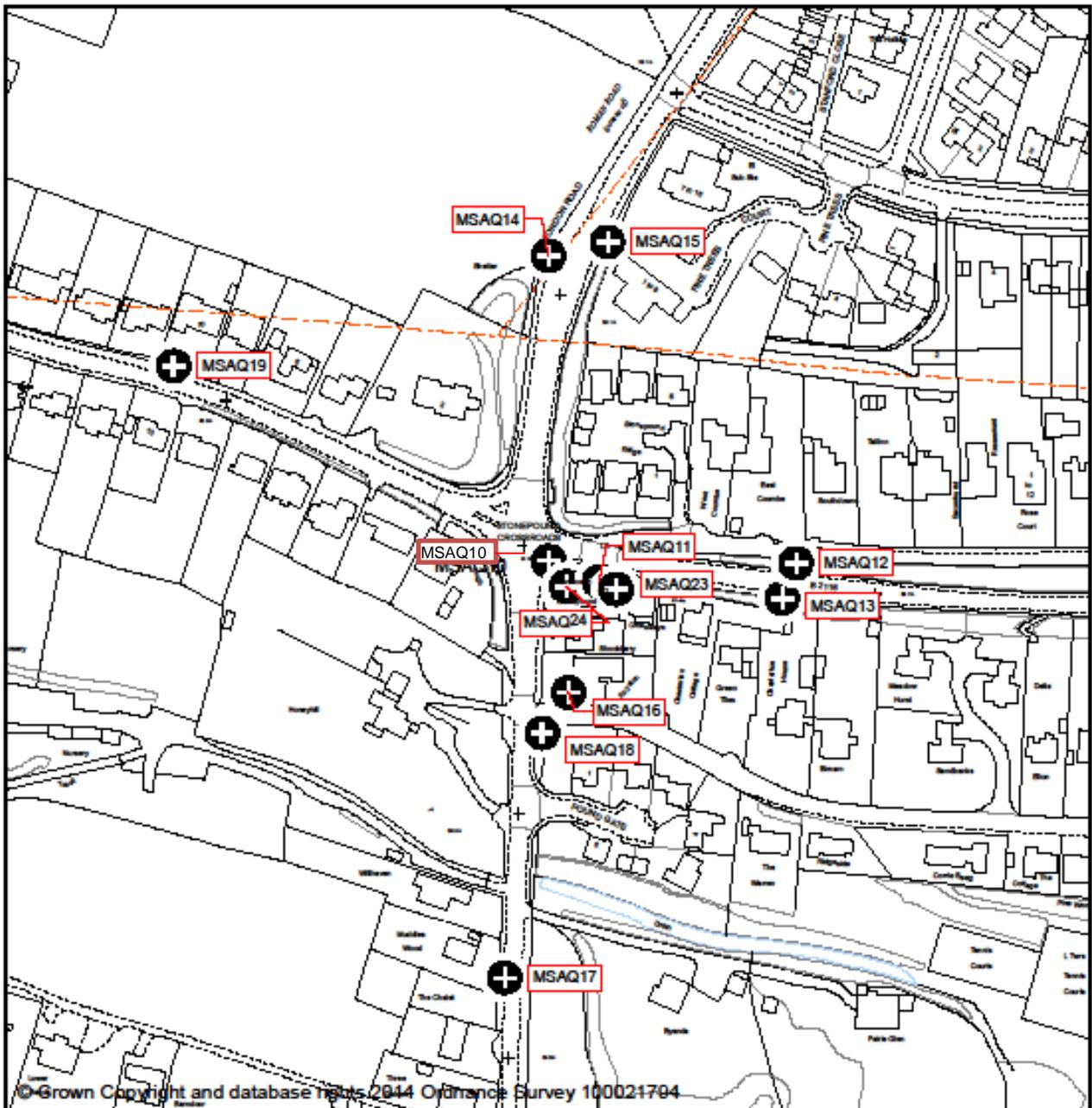
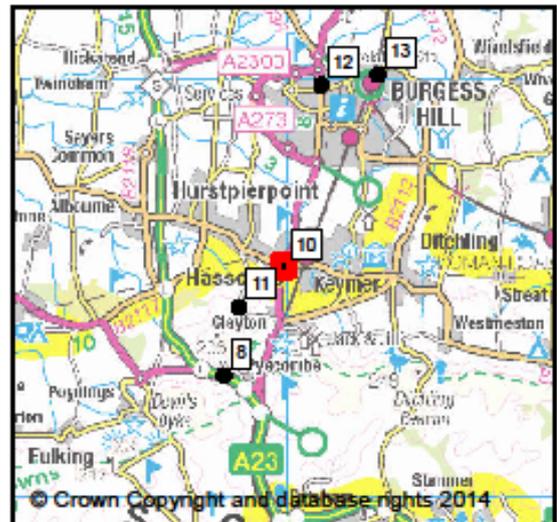




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Air Quality Monitoring
July 2014
Site No's 10 to 19, 23, & 24
Stonepound Crossroads, Keymer Road, Hassocks

 NO2 Monitoring Sites Scale : 1:2,000

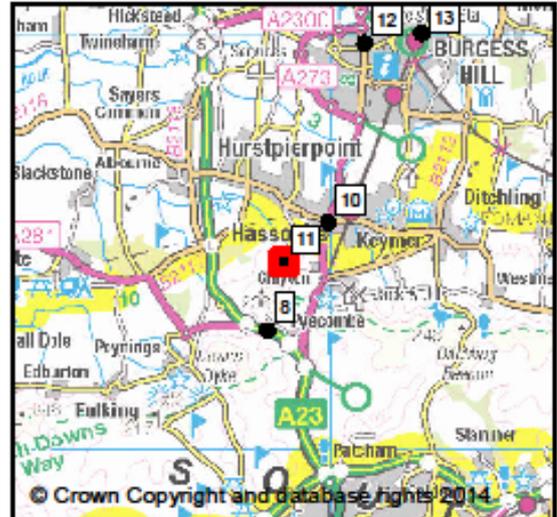




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Air Quality Monitoring
July 2014
Site No. 20
New Way Lane, Hurstpierpoint

 NO2 Monitoring Sites Scale : 1:2,500

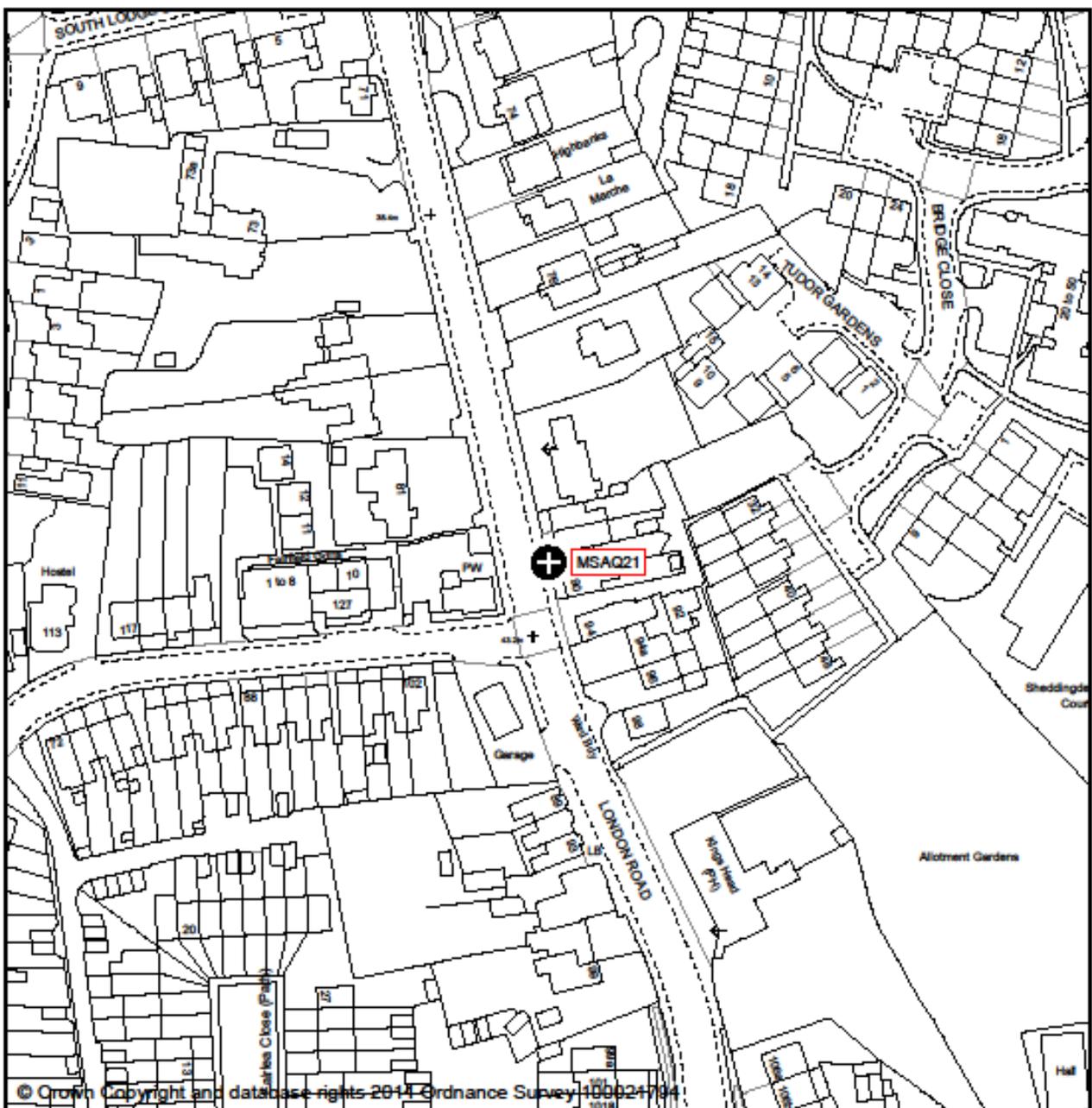




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Air Quality Monitoring
July 2014
Site No. 21
86-88 London Road, Burgess Hill

 NO2 Monitoring Sites Scale : 1:1,250





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Air Quality Monitoring
July 2014
Site No. 22
28 Leylands Road, Burgess Hill

 NO2 Monitoring Sites Scale : 1:1,250

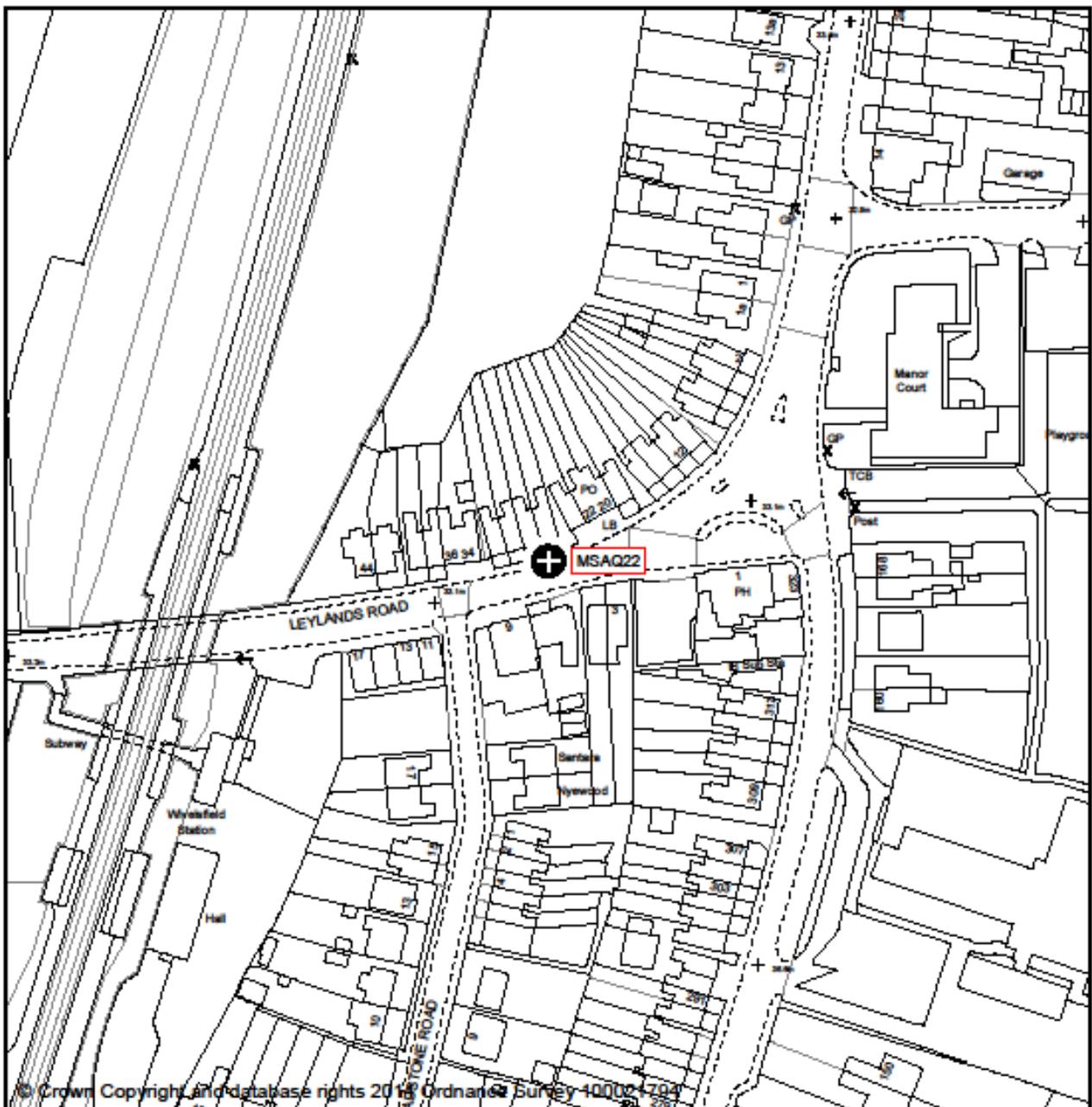
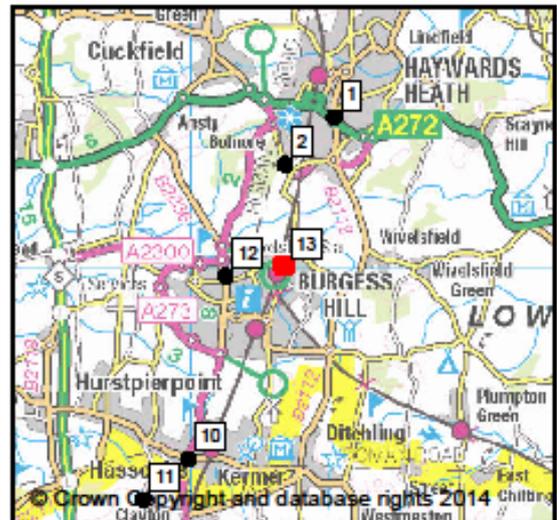


Table 2.1 Details of Non-Automatic Monitoring Sites

Site Name	Site Reference	Site Type	OS Grid Ref	Pollutants Monitored	In AQMA	Relevant Exposure	Distance to kerb of nearest road
South Road Haywards Heath	MSAQ1	Roadside	X 533342 Y 123587	NO ₂	No	Yes (0m)	2.5m
Traunstein Way Bolnore Village Haywards Heath	MSAQ2	Roadside	X 532197 Y 122459	NO ₂	No	No	n/a
London Road East Grinstead	MSAQ3	Kerbside	X 538690 Y 138759	NO ₂	No	No	0.5m
Court Close East Grinstead	MSAQ4	Suburban	X 539919 Y 138161	NO ₂	No	Yes (14m)	0.5m
Lewes Road East Grinstead	MSAQ5	Suburban	X 541248 Y 136998	NO ₂	No	No	1.5m
Smugglers End Handcross	MSAQ6	Roadside	X 526138 Y 129827	NO ₂	No	Yes (0m)	n/a
Crabbet Park Worth	MSAQ7	Suburban	X 530441 Y 137280	NO ₂	No	Yes (0m)	n/a
Pyecombe Street Pyecombe	MSAQ8	Roadside	X 528477 Y 112870	NO ₂	No	Yes (7.5m)	1m
Water Tower Colwood Lane Warninglid	MSAQ9	Rural	X 525668 Y 125028	NO ₂	No	No	n/a
Stonepound Keymer Road Hassocks	MSAQ10	Roadside	X 529911 Y 115489	NO ₂	Yes	Yes (6.7m)	1.5m
Overcourt Northern Façade Keymer Road Hassocks	MSAQ11	Roadside	X 529930 Y 115481	NO ₂	Yes	Yes (0m)	5.5m
Telegraph Pole Keymer Road Hassocks	MSAQ12	Kerbside	X 529999 Y 115488	NO ₂	No	No	1.1m

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Lamp Post Keymer Road Hassocks	MSAQ13	Kerbside	X 529995 Y 115476	NO ₂	No	No	0.85m
Bus Stop London Road Hassocks	MSAQ14	Kerbside	X 529911 Y 115598	NO ₂	No	No	1.6m
Traffic Light Sign London Road Hassocks	MSAQ15	Kerbside	X 529930 Y 115600	NO ₂	No	Yes (6.5m)	1.6m
Façade of residential premises Brighton Road Hassocks	MSAQ16	Roadside	X 529918 Y 115441	NO ₂	No	Yes (0m)	11.5m
Lamp Post Brighton Road Hassocks	MSAQ17	Kerbside	X 529894 Y 115340	NO ₂	No	Yes (11m)	1.25m
Bus Stop Brighton Road Hassocks	MSAQ18	Kerbside	X 529909 Y 115427	NO ₂	No	Yes (16m)	2.0m
Lamp Post Hurst Road Hassocks	MSAQ19	Roadside	X 529779 Y 115557	NO ₂	No	Yes (13.2m)	1.3m
New Way Lane Hassocks	MSAQ20	Rural	X 528854 Y 114517	NO ₂	No	n/a	n/a
London Road Burgess Hill	MSAQ21	Roadside	X 530792 Y 119821	NO ₂	No	Yes (2.5m)	1.9m
Leylands Road Burgess Hill	MSAQ22	Roadside	X 532160 Y 120069	NO ₂	No	Yes (3m)	1.5m
Overcourt Eastern Façade Keymer Road Hassocks	MSAQ23	Roadside	X 529935 Y 115478	NO ₂	Yes	Yes (0m)	6.0m
Overcourt Western Façade Keymer Road Hassocks	MSAQ24	Roadside	X 529918 Y 115479	NO ₂	Yes	Yes (0m)	7.5m

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide

Mid Sussex District Council operate a number of diffusion tube sampling sites.

The bias corrected results for January to December 2013 are in Table 2.2. All data have been ratified, see Appendix A.

The 2013 annual means were below the NO₂ objective at 20 of the 24 monitoring sites.

The objective was exceeded at the following locations:

1. Stonepound, Keymer Road, Hassocks
2. Overcourt, Northern Façade, Keymer Road, Hassocks
3. Lamp post, Keymer Road, Hassocks
4. Telegraph pole, Keymer Road, Hassocks

The first two are sites with relevant exposure (i.e. residential premises within 15m of the monitoring site).

Stonepound and Overcourt are within the Air Quality Management Area (AQMA) declared in March 2012.

2.2.2 Nitrogen Dioxide (NO₂)

Diffusion Tube Monitoring Data

Table 2.2 Results of nitrogen dioxide diffusion tube monitoring in 2013

Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Data Capture 2013	Data with less than 9 months has been annualised	Annual mean concentration (Bias Adjustment factor = 0.95)	Notes
							2013 (µg/m ³)	
MSAQ1	South Road Haywards Heath	Roadside	No	No	12 months	n/a	24.6	Relevant exposure (façade)
MSAQ2	Traunstein Way Bolnore Village Haywards Heath	Roadside	No	No	12 months	n/a	14.2	Not relevant exposure
MSAQ3	London Road East Grinstead	Kerbside	No	No	12 months	n/a	37.5	Not relevant exposure
MSAQ4	Court Close East Grinstead	Suburban	No	No	12 months	n/a	18.3	Relevant exposure Estimated Concentration at nearest receptor 15.3µg/m ³ ⁽²⁾
MSAQ5	Lewes Road East Grinstead	Suburban	No	No	12 months	n/a	34.3	Not relevant exposure
MSAQ6	Smugglers End Handcross	Roadside	No	No	12 months	n/a	23.9	Relevant exposure (façade)
MSAQ7	Crabbet Park Worth	Suburban	No	No	12 months	n/a	26.7	Relevant exposure (façade)
MSAQ8	Pyecombe Street Pyecombe	Roadside	No	No	11 months	n/a	29.0	Relevant exposure Estimated Concentration at nearest receptor 23.2µg/m ³ ⁽²⁾
MSAQ9	Water Tower Colwood Lane Warninglid	Rural background	No	No	12 months	n/a	11.0	Not relevant exposure

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MSAQ10	Stonepound Keymer Road Hassocks ⁽²⁾	Roadside	Yes	No	12 months	n/a	48.2	Relevant exposure Estimated Concentration at nearest receptor 37.9µg/m ³ ⁽²⁾
MSAQ11	Overcourt Northern facade Keymer Road Hassocks ⁽²⁾	Facade	Yes	Trilocated	12 months	n/a	43.4	Relevant exposure (façade)
MSAQ12	Telegraph Pole Keymer Road Hassocks	Kerbside	No	No	12 months	n/a	40.9	Not relevant exposure
MSAQ13	Lamp Post Keymer Road Hassocks	Kerbside	No	No	11 months	n/a	45.0	Not relevant exposure
MSAQ14	Bus Stop London Road Hassocks	Kerbside	No	No	12 months	n/a	35.7	Not relevant exposure
MSAQ15	Traffic Light Sign London Road Hassocks	Kerbside	No	No	12 months	n/a	38.2	Relevant exposure Estimated Concentration at nearest receptor 30.1µg/m ³ ⁽²⁾
MSAQ16	Façade of residential premises Brighton Road Hassocks	Facade	No	No	12 months	n/a	24.4	Relevant exposure (façade)
MSAQ17	Lamp Post Brighton Road Hassocks	Kerbside	No	No	12 months	n/a	26.8	Relevant exposure Estimated Concentration at nearest receptor 20.6µg/m ³ ⁽²⁾
MSAQ18	Bus Stop ⁽³⁾ Brighton Road Hassocks	Kerbside	No	No	5 months	Yes	35.2	Not relevant exposure
MSAQ19	Lamp Post Hurst Road Hassocks	Kerbside	No	No	9 months	n/a	21.3	Relevant exposure Estimated Concentration at nearest receptor 16.6µg/m ³ ⁽²⁾
MSAQ20	New Way Lane Hurstpierpoint	Rural background	No	No	12 months	n/a	10.9	Not relevant exposure
MSAQ21	London Road Burgess Hill	Kerbside	No	No	10 months	n/a	34.0	Relevant exposure Estimated Concentration at nearest receptor 30.4µg/m ³ ⁽²⁾

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MSAQ22	Leylands Road Burgess Hill	Kerbside	No	No	12 months	n/a	30.6	Relevant exposure Estimated Concentration at nearest receptor 26.3µg/m ³ ⁽²⁾
MSAQ23	Overcourt Eastern Façade Keymer Road Hassocks	Kerbside	No	No	12 months	n/a	35.4	Relevant exposure (façade)
MSAQ24	Overcourt Western Façade Keymer Road Hassocks	Kerbside	No	No	10 months	n/a	28.7	Relevant exposure (façade)

⁽¹⁾ Bias adjustment factor taken from the spreadsheet available at the defra website (v06.14) <http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html>

⁽²⁾ Concentration at nearest receptor calculated using the spreadsheet available at <http://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html> and the background map data available at <http://laqm.defra.gov.uk/maps/maps2010.html>

⁽³⁾ Bus stop post removed in April 2013 - site relocated to an adjacent bus stop 14m South

Table 2.3 Results of nitrogen dioxide monitoring using diffusion tubes 2007 to 2013

Site ID	Location	Site Type	Within AQMA	Annual mean concentrations ($\mu\text{g}/\text{m}^3$) Adjusted for bias						
				2007 (0.77 bias)	2008 (0.87 bias)	2009 (0.84 bias)	2010 (0.85 bias)	2011 (0.83 bias)	2012 (0.97 bias)	2013 (0.95 bias)
MSAQ1	South Road Haywards Heath	Roadside	No	24.7	28.1	26.7	27.0	24.2	24.4	24.6
MSAQ2	Traunstein Way Bolnore Village Haywards Heath	Roadside	No	14.5	14.7	15.0	16.4	13.7	17.5	14.2
MSAQ3	London Road East Grinstead	Kerbside	No	40.3	44.5	44.5	43.7	39.1	41.8	37.5
MSAQ4	Court Close East Grinstead	Suburban	No	22.5	23.1	22.7	24.0	20.1	23.4	18.3
MSAQ5	Lewes Road East Grinstead	Suburban	No	37.2	40.5	40.7	39.8	35.6	37.6	34.3
MSAQ6	Smugglers End Handcross	Roadside	No	28.9	32.3	32.1	33.2	28.2	31.6	23.9
MSAQ7	Crabbet Park Worth	Suburban	No	29.2	32.5	30.1	31.6	29.1	30.1	26.7
MSAQ8	Pyecombe Street Pyecombe	Roadside	No	27.6	33.5	33.9	32.8	32.0	31.4	29.0
MSAQ9	Water Tower Colwood Lane Warninglid	Rural background	No	11.2	11.3	11.7	13.0	10.2	9.2	11.0
MSAQ10	Stonepound Keymer Road Hassocks	Roadside	Yes	40.9	48.7	50.7	55.2	49.0	47.4	48.2
MSAQ11	Overcourt Northern façade Keymer Road Hassocks	Facade	Yes	44.1	48.1	50.4	50.1	47.0	47.0	43.4
MSAQ12 Up to end Dec 2011	Bus Stop Keymer Road Hassocks	Kerbside	No	N/A	46.4 ⁽¹⁾	45.5 ⁽¹⁾	50.4	33.0 ⁽¹⁾	N/A	N/A
MSAQ12	Telegraph pole Keymer Road Hassocks	Kerbside	No	N/A	N/A	N/A	N/A	N/A	40.0	40.9

Mid Sussex District Council

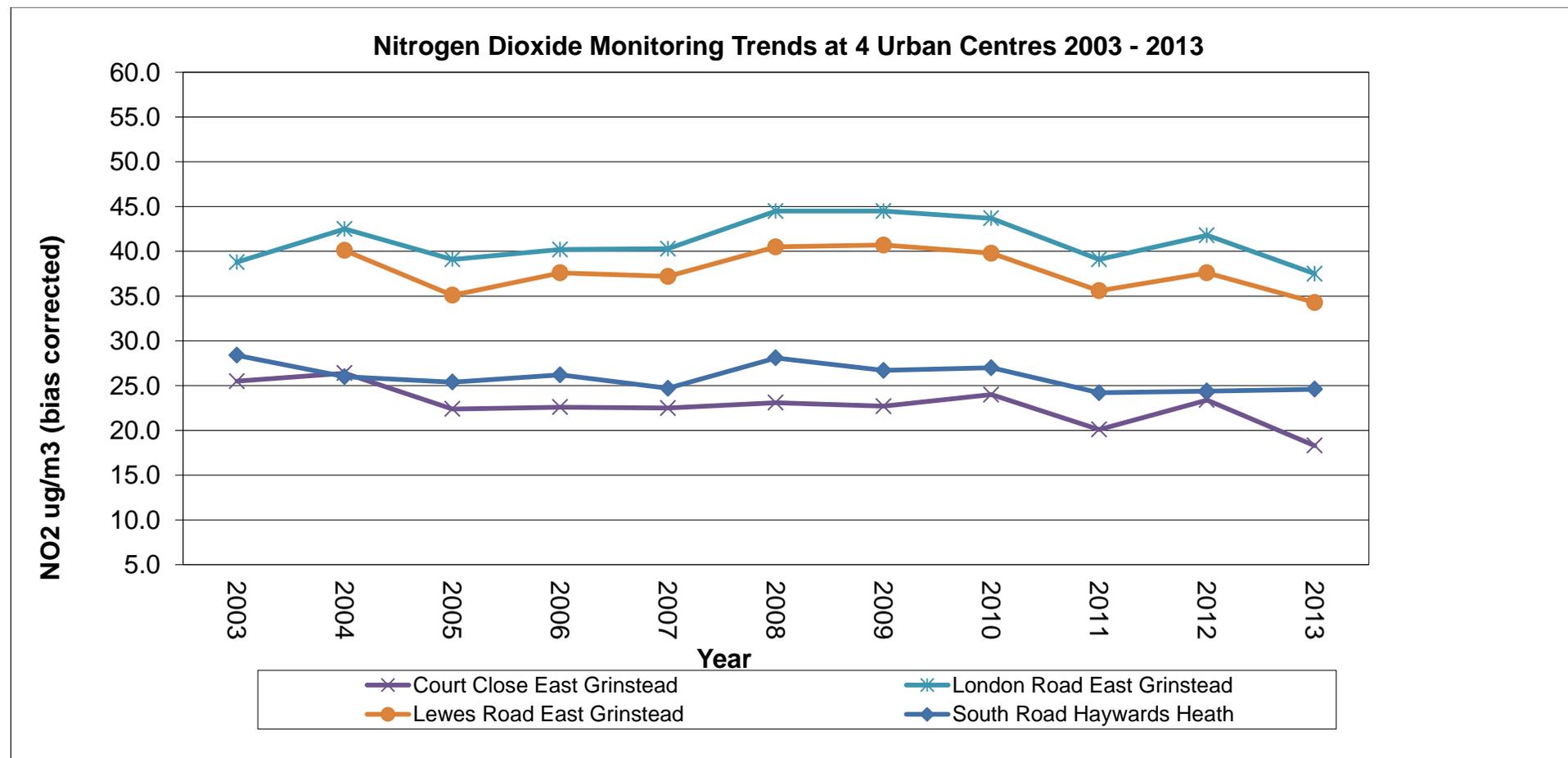
MSAQ13	Lamp Post Keymer Road Hassocks	Kerbside	No	N/A	43.2 ⁽¹⁾	44.5	45.4	45.9	43.4	45.0
MSAQ14	Bus Stop London Road Hassocks	Kerbside	No	N/A	42.4 ⁽¹⁾	43.8	41.3	39.7	41.9	35.7
MSAQ15	Traffic Light Sign London Road Hassocks	Kerbside	No	N/A	39.3 ⁽¹⁾	41.3	42.8	38.5	38.4	38.2
MSAQ16	Façade of residential premises Brighton Road Hassocks	Facade	No	N/A	26.5 ⁽¹⁾	24.5	27.2	23.7	22.8	24.4
MSAQ17	Lamp Post Brighton Road Hassocks	Kerbside	No	N/A	25.0 ⁽¹⁾	25.6	28.0	24.8	25.4	26.8
MSAQ18 Up to 2012	Bus Stop 1 Brighton Road Hassocks	Kerbside	No	N/A	32.1 ⁽¹⁾	35.3	38.5	35.7	34.9	N/A
MSAQ18	*Bus Stop 2 Brighton Road Hassocks	Kerbside	No	N/A	N/A	N/A	N/A	N/A	N/A	36.6
MSAQ19	Lamp Post Hurst Road Hassocks	Kerbside	No	N/A	22.3 ⁽¹⁾	23.2	23.9	20.9	20.7	21.3
MSAQ20	New Way Lane Hurstpierpoint	Rural background	No	N/A	N/A	N/A	N/A	13.5 ⁽¹⁾	9.4	10.9
MSAQ21	London Road Burgess Hill	Kerbside	No	N/A	N/A	N/A	N/A	N/A	31.2	34.0
MSAQ22	Leylands Road Burgess Hill	Kerbside	No	N/A	N/A	N/A	N/A	N/A	27.7	30.6
MSAQ23	Overcourt Eastern façade Keymer Road Hassocks	Facade	Yes	N/A	N/A	N/A	N/A	N/A	N/A	35.4
MSAQ24	Overcourt Western façade Keymer Road Hassocks	Facade	Yes	N/A	N/A	N/A	N/A	N/A	N/A	28.7

*Bus stop post removed in April 2013 - site relocated to adjacent bus stop 14m South

Trends in annual mean nitrogen dioxide concentrations measured at diffusion tube monitoring sites

Graph 2.1

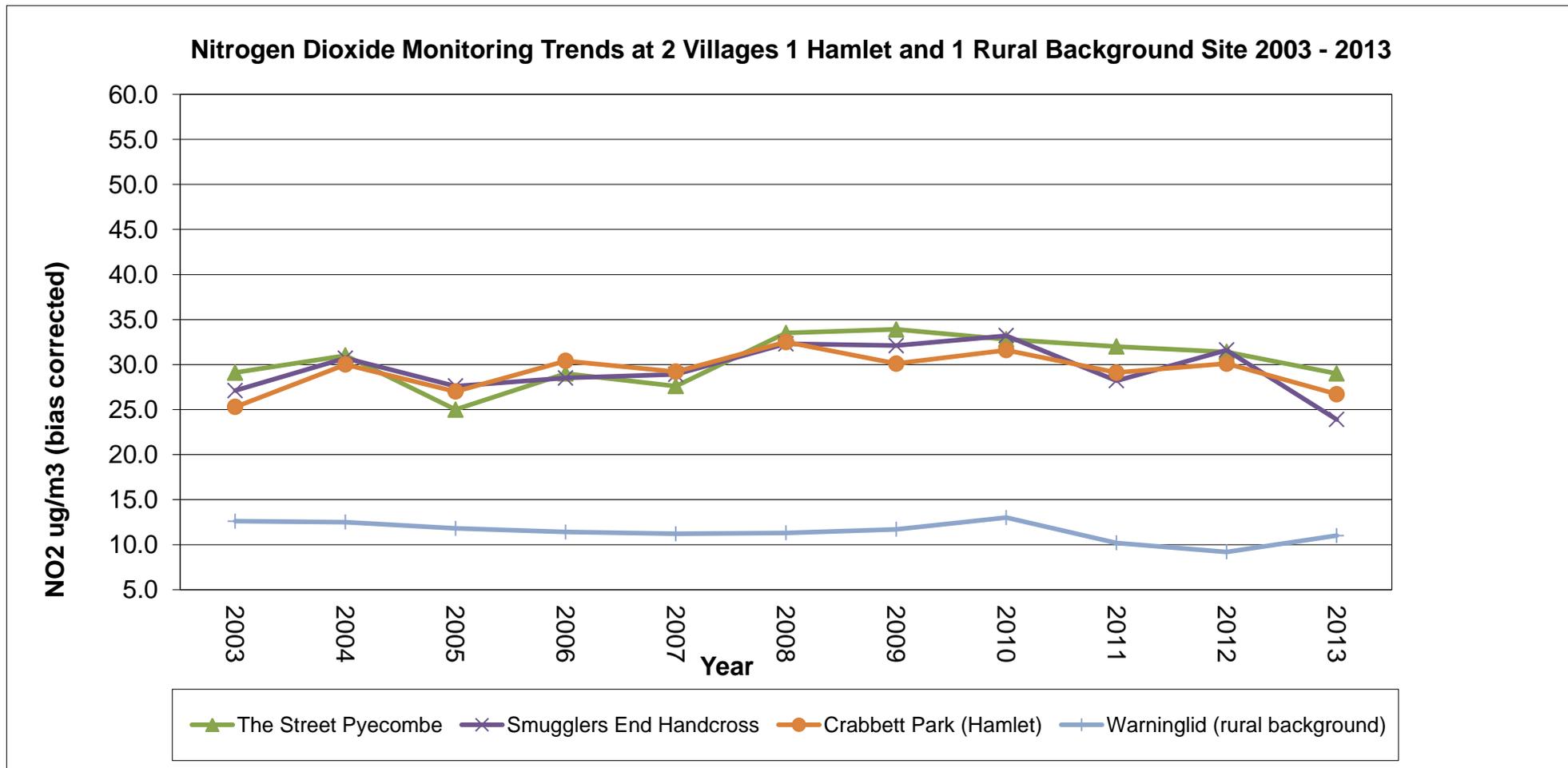
Annual mean concentrations (bias corrected) 2003 to 2013 of nitrogen dioxide diffusion tube measurements at 4 urban centre sites



From 2005 to 2009 there has been a gradual increase in the monitored levels of nitrogen dioxide at 3 of the 4 urban centres. The 4th, Court Close East Grinstead, has remained at a relatively consistent level.

In 2010 the monitored levels declined slightly at 2 sites, London Road and Lewes Road East Grinstead and in 2011 the monitored levels at 3 of the sites were lower than in previous years. In 2012 the levels increased though they were still lower than in 2010. In 2013 the levels decreased at 3 of the sites.

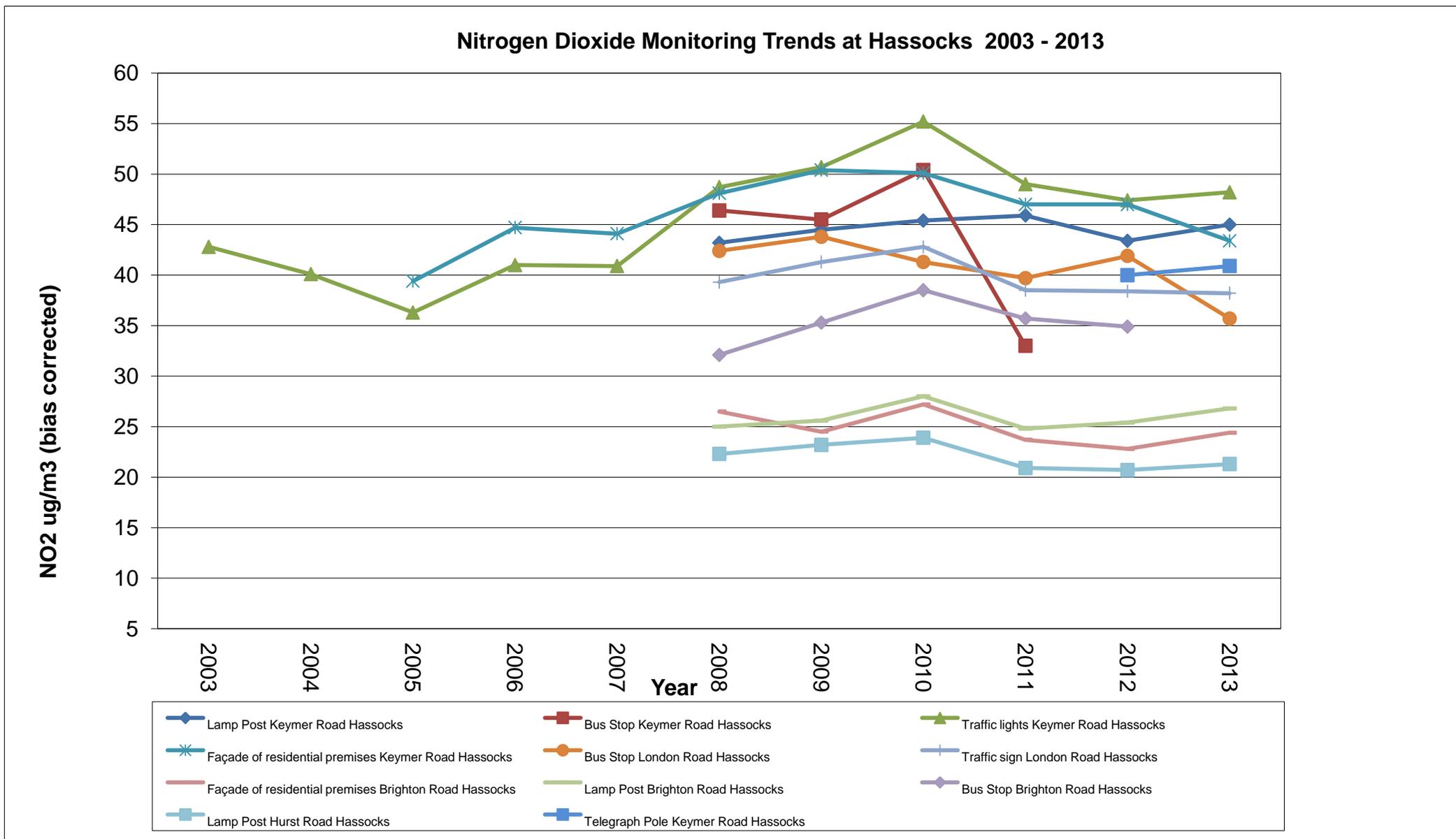
Graph 2.2
Annual mean concentrations (bias corrected) 2003 to 2013 of nitrogen dioxide diffusion tube measurements at 2 villages, 1 hamlet and 1 rural background site



From 2005 to 2009 there has been a gradual increase in levels nitrogen dioxide at 3 of the sites. The levels recorded in 2011 have reduced slightly from 2010. From 2008 to 2012 there has been a steady decline at the Pyecombe site. The rural background declined in 2011 and 2012. Levels at 3 of the sites declined in 2013.

Graph 2.3

Annual mean concentrations (bias corrected) 2003 to 2013 of nitrogen dioxide diffusion tube measurements at Hassocks



From 2003 to 2010 the levels 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 levels 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 levels in 2013.

4 of the sites are above the objective in 2013.

The Bus stop site at Keymer Road ceased to be used due to consistent vandalism in January 2012. An alternative site (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.

2.2.1 Particulate Matter (PM₁₀)

Mid Sussex do not monitor for PM₁₀.

2.2.2 Sulphur Dioxide (SO₂)

Mid Sussex do not monitor for sulphur dioxide.

2.2.3 Benzene

Mid Sussex do not monitor for Benzene.

Mid Sussex District Council has examined the results from monitoring in the district.

Concentrations within the AQMA still exceed the objective for nitrogen dioxide at Stonepound crossroads in Hassocks and the AQMA should remain.

Concentrations outside of the AQMA are all below the objectives at relevant locations, therefore there is no need to proceed to a Detailed Assessment.

3 New Local Developments

Mid Sussex confirms that there are no new or newly identified local developments which may have an impact on air quality within the Local Authority area.

Mid Sussex confirms that all the following have been considered:

- **Road traffic sources**
- **Other transport sources**
- **Industrial sources**
- **Commercial and domestic sources**
- **New developments with fugitive or uncontrolled sources.**

4 Planning Applications

Proposed planning applications that may need to be considered for Air Quality in the near future

- Development of housing to the North West of Burgess Hill, adjacent to the A2300
- A mixed development of housing (500 houses) and industrial units on land West of Copthorne, adjacent to the M23. This is currently registered as an outline planning application for up to 500 homes, a primary school and doctors surgery, up to 15,500sqm employment floorspace (B1C light industry/B8 storage and distribution), public open space, allotments, associated landscaping, infrastructure (including sub stations and pumping station) and pedestrian and cycle access.

It should also be noted that there is a proposal for a second runway at Gatwick Airport which is being considered by the Airport Commission as part of the national framework for airport expansion.

5 Implementation of Action Plan

The progress made in implementation of the action plan is summarised below.

Table 5.1 Action Plan Progress

	Actions	Milestones	Date	Progress at 10 July 2014
1.	Re-assess traffic light sequencing	Review of current sequencing to be undertaken by West Sussex County Council traffic signal engineers.	By end 2014	Completed- 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. Existing pedestrian phase invites pedestrians to cross whilst other movements are occurring, thereby minimising the impact on capacity. As a normal part of their activity, the traffic signals engineers will review the performance of the existing set up, although any changes are unlikely to result in any noticeable reduction in queuing.
2.	Minimising HGV movements – advisory lorry routes	Consider study of HGV traffic movements and liaise with local businesses to establish sign locations. Agree possible dates for signs to be put up on A273 Burgess Hill, A2300, A23 northbound, south of Pyecombe. Approaching Highways Agency to negotiate with sat nav companies to show HGV advisory routes. Approaching Burgess Hill Business Park co-ordinator to put information in their newsletter discouraging HGVs through the crossroads.	By end of 2015	Signage to encourage use of the A2300 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 is being undertaken to look at the technical feasibility options for making the A2300 between Burgess Hill and the A23 into 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. Study is due to report soon and early modelling results indicate that partial dualling (A23 to Northern Arc Link Road) will encourage rerouting away from the A273 north and south of Burgess Hill. A publicity drive to be considered to encourage businesses to use the advisory HGV network.

	Actions	Milestones	Date	Progress at 10 July 2014
3.	“Cut Engine, Cut pollution” signs	Agree date with West Sussex County Council for this to be achieved and process for approval.	By end 2014	The Steering Group meeting of 14 February agreed the installation of four signs, one on each approach. At the 8 July 14 meeting WSCC confirmed that they have the signs in stock and undertook to meet the costs of installation. Installation is projected to be completed in 6-8 weeks. A joint press release is to be issued when the signs are installed with information about the AQAP.
4.	Mid Sussex District Council Travel Plan	Mid Sussex District Council to review its Green Travel Scheme, e.g. in respect of car share, public transport incentives, cycling, walking and promotion of sustainable business travel.	By end of 2015	Travel Scheme review to be completed. MSDC has joined easit and are promoting train use to staff through discount cards. Further progress to be made through MSDC’s Sustainability Officer from September 2014.
5.	School and work travel plans	Work with WSCC School Travel Plan Co-ordinator to develop travel plans in Hassocks schools taking into account the AQMA. Develop work with private schools. Promotion of Work Travel Plans for local businesses, e.g. West Sussex Car Share Scheme and Travelwise.	By end of 2015	Hassocks schools are expanding their capacity and revising their travel plans accordingly. A representative of Downlands school attended the consultation day and their Eco-Committee has identified the Air Quality Action Plan as a future project. The WSCC School Travel Advisor is currently working with Downlands to produce a new School Travel Plan and will be working with Hassocks Infant School on their Plan in the new school year. Windmills Junior School have revised their Plan. West Sussex County Council have a Travelwise Local Sustainable Transport Fund project (this is in Chichester and Horsham), which includes behaviour change initiatives to promote travel plans in schools and businesses across West Sussex. For schools this has included a Travel Choices Roadshow and rail education initiative. The Walk to Schools LSTF programme 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 programme funding is to March 2015, but an application has been made to DfT for additional funding in 2015/16. Local projects will be developed through MSDC’s Sustainability Officer. As developments come along through the planning process would look to secure a Travel Plan.

	Actions	Milestones	Date	Progress at 10 July 2014
6.	Improve and promote cycle routes	<p>Progress with specific cycle route schemes:</p> <p>Hassocks station to access Jack and Jill windmills by March 2015.</p> <p>Route from Hurstpierpoint-Hassocks-Keymer-Ditchling, Woodlands Road and links with Burgess Hill.</p> <p>Promotion of West Sussex Cycle Planner and SDNP journey planner.</p>	On-going	<p>Progress with the Hassocks station to the South Downs cycle path 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.</p> <p>Alternatives are being considered including upgrading the existing cycle route via Lodge Lane or the possibility of a wayfinding plinth at the station</p> <p>As part of a wider 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.</p> <p>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.</p>
7.	Encourage alternate transport modes	<p>Identifying popular travel routes, encouraging transport companies to provide transport and incentives to use them and to help advertise them.</p> <p>Projects under this action are closely linked to the other action points, e.g. 6, 8 and 9.</p>	On-going	<p>West Sussex County Council are launching their "Travel West Sussex" multi-modal travel website shortly. This will enable residents to plan journeys by bus, rail, bicycle, and car, and will also enable them to search for potential journey sharers.</p> <p>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.</p> <p>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.</p> <p>Other initiatives that can be pursued include Bikeability training in schools</p> <p>The Cycle Journey Planner is up and running, this will be merged with the Travel West Sussex website in due course</p> <p>The energise network (formerly EVSouthEast) was launched formally last week, as part of the project to install around 40 rapid electric vehicle charging points in the South East by March 2015. WSCC has been supporting this and scoping out potential sites for the chargers to be installed – initial locations include Hickstead and Pyecombe Services on A23. Consideration to be given to installing one in the Hassocks area. Website - http://www.energisenetwork.co.uk/</p>

	Actions	Milestones	Date	Progress at 10 July 2014
8.	Car share promotion	Promotion of the West Sussex Car Share Scheme - new website and WSCC will be running media campaigns. Consider item in Mid Sussex Matters. MSDC promotion of the easitMIDSUSSEX initiative	By end of 2014	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. MSDC has joined easit and is promoting its use by businesses through the Council's website, See http://www.easit.org.uk/
9.	Partnership work with bus and train operators	WSCC approaching bus and train companies to encourage co-ordination of bus and train timetables. Use of real time information at the station for bus arrivals.	By end of 2015	There may be opportunities to require investment in new bus services when the franchises are re-let. The new Thameslink franchise has been awarded to GoVia (Southern) who will take 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.
10.	Better driving techniques	Publicising the benefits of better driving techniques e.g. through website and MSM.	By end of 2014	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)
11.	Increase air quality information available	Provision of additional air quality information via Council website. MSDC Annual Monitoring Report	By end of 2014	The next Annual Monitoring Report is due to be published on the Council's website by the end of August 2014 and will include additional air quality data. The review of the Air Quality information available on the website has begun. It will include links directly to tables of monitoring data so it is easier to access.
12.	Health and Wellbeing promotion	Promotion of service offered by Sussex Air, e.g. Airalert service through link on our website. Working through the Mid Sussex Wellbeing Hub regarding initiatives aimed at respiratory illnesses.	On-going	A link to Airalert has been added to the MSDC website. Information will also be added regarding the ColdAlert service. No directly relevant initiatives aimed at respiratory illnesses are included in the current Mid Sussex Wellbeing programme, but there are projects for general health and reducing smoking.
13.	Promote national energy efficiency schemes e.g. Green Deal.	WSCC are Green Deal leads and MSDC advocates to promote the scheme. Timetable for implementation?	On-going	Schemes with the Sussex Energy Saving Partnership are being promoted, including one for replacement boilers and insulation aimed at low income and vulnerable households.

	Actions	Milestones	Date	Progress at 10 July 2014
14.	EPA90 statutory nuisance	Usual enforcement of emissions from industrial, commercial and domestic sources (ad hoc) or targeted Hassocks initiative.	On-going	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.
15.	Vehicle emission testing	Procedure for deciding upon and organising vehicle emission testing around the AQMA.	Once per year	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. 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.
16.	Mid Sussex District Plan & Local Development Framework	Submitted District Plan includes DP19 Transport and DP27 Noise, Air and Light pollution. Updated Transport Study information.	On-going	The District Plan has been delayed for more work to be undertaken regarding the duty to co-operate with neighbouring authorities. Existing Local Plan policies require transport mitigation plans and account to be taken of air quality issues.
17.	Incorporate "SAQP: Air Quality Guidance for Planners"	Arrangements for Development Management using the guidance. Implementation and publicity.	By end of 2013	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.
18.	Air Quality Monitoring	Continued air quality monitoring across the District,	On-going	On-going monitoring of air quality across the District. Results will be referred to in the Annual Monitoring Report. The impact of any measures taken in the AQMA will be monitored.
19.	Consider introduction of lower speed limits and/or traffic calming measures to reduce the rate at which traffic arrives at the junction.	Discuss with WSCC Transport Planning Team*		If there were more suitable alternative routes it would be an easier and more defensible 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.

	Actions	Milestones	Date	Progress at 10 July 2014
20.	Consider enforcement of commuter on-street car parking around Hassocks station.	Parking matters in Hassocks are already being considered through the Hassocks Parish Council Parking Working Group. See Actions in the Parking and Traffic Flow Report.		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.

6 Conclusions and Proposed Actions

6.1 Conclusions from New Monitoring Data

The 2013 annual means were below the nitrogen dioxide (NO₂) objective at 20 monitoring sites.

The objective was exceeded at 4 locations, 2 of which have relevant exposure i.e. residential premises within 15 metres of a monitoring site.

These sites are within the Air Quality Management Area (AQMA) declared in March 2012.

7 References

DEFRA (2002) The Air Quality (England) (Amendment) Regulations. HMSO.

DEFRA (2003) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland: Addendum. HMSO.

DETR (2000) The Air Quality (England) Regulations. HMSO.

DETR (2000) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland. HMSO.

DEFRA (2009) Local Air Quality Management Policy Guidance. LAQM.PG(09)

DEFRA (2009) Local Air Quality Management Technical Guidance. LAQM.TG(09)

The Environment Act (1995)

The Environmental Protection Act (1990)

Appendices

Appendix A: QA:QC Data

Diffusion Tube Bias Adjustment Factors

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

The bias adjustment factor used to correct the diffusion tube monitoring results is 0.95 taken from the database of diffusion tube bias factors spreadsheet (v06.14) 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 collocation studies available at <http://laqm.defra.gov.uk/diffusion-tubes/precision.html> show Gradko laboratory had good precision.

Appendix B:

Nitrogen dioxide diffusion tube monitoring

Monthly results January to December 2013

Site ID	Location	Monthly Average levels of NO ₂ (µg/m ³)											
		Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
MSAQ1	South Road Haywards Heath	26.3	29.6	28.6	20.9	18.9	31.9	24.1	21.5	25.8	24.4	28.3	30.0
MSAQ2	Traunstein Way Bolnore Village Haywards Heath	16.1	21.8	19.7	13.4	11.6	9.8	11.7	10.9	13.2	12.8	21.3	17.6
MSAQ3	London Road East Grinstead	39.4	40.8	32.6	35.4	32.5	34.2	40.5	42.8	42.9	35.3	40.9	56.6
MSAQ4	Court Close East Grinstead	22.3	25.3	24.0	17.6	10.3	14.9	17.1	10.1	23.0	18.6	26.1	21.6
MSAQ5	Lewes Road East Grinstead	41.0	41.4	32.9	29.7	28.7	19.1	36.4	42.4	42.9	37.0	47.3	34.3
MSAQ6	Smugglers End Handcross	32.0	27.3	21.9	20.7	23.7	20.5	23.6	26.1	26.6	22.4	31.3	25.9
MSAQ7	Crabbet Park Worth	34.8	27.9	24.6	25.9	22.9	21.0	24.7	27.5	31.1	28.0	34.8	34.0
MSAQ8	Pyecombe Street Pyecombe	38.0	Lost	27.0	27.0	21.7	21.9	30.8	30.3	32.5	33.8	34.7	37.7
MSAQ9	Water Tower Colwood Lane Warninglid	18.8	14.8	15.8	901	8.6	6.7	8.7	8.3	9.2	10.9	16.8	10.9
MSAQ10	Stonepound Keymer Road Hassocks	37.6	61.3	49.1	49.9	44.8	53.7	65.9	46.7	55.2	46.2	53.2	45.0
MSAQ11	Overcourt Keymer Road Hassocks	39.7	43.2	38.7	43.3	41.2	44.0	59.1	44.9	49.3	41.3	53.7	50.1
MSAQ12	Telegraph Pole Keymer Road Hassocks	44.0	57.1	43.2	44.6	40.7	38.8	48.4	42.0	44.8	34.5	42.6	36.1
MSAQ13	Lamp Post Keymer Road Hassocks	39.2	52.8	54.7	49.7	50.3	42.0	44.9	35.3	52.1	45.2	55.3	Lost
MSAQ14	Bus Stop London Road Hassocks	30.3	33.9	36.6	39.1	28.2	36.6	49.1	44.3	42.8	44.2	37.6	28.5
MSAQ15	Traffic Light Sign London Road Hassocks	31.3	40.9	36.6	39.4	35.7	39.6	49.9	39.9	44.4	38.3	43.3	43.8
MSAQ16	Façade of residential premises Brighton Road Hassocks	29.0	34.4	29.1	24.4	20.6	20.8	22.7	20.8	24.9	21.1	35.4	25.7
MSAQ17	Lamp Post Brighton Road Hassocks	26.8	38.4	30.4	26.3	23.8	24.2	27.1	25.7	28.6	25.1	33.6	28.9
MSAQ18	Bus Stop Brighton Road Hassocks	N/A	N/A	N/A	Lost	Lost	33.2	42.6	36.7	44.3	Lost	41.9	Lost
MSAQ19	Lamp Post Hurst Road Hassocks	25.1	29.2	Lost	21.2	Lost	15.0	Lost	17.1	21.5	19.2	28.6	24.8

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MSAQ20	New Way Lane Hurstpierpoint	15.7	16.3	16.9	11.4	8.2	8.2	7.5	7.5	9.4	10.0	14.2	12.8
MSAQ21	London Road Burgess Hill	38.0	39.0	41.0	32.4	30.8	31.6	36.8	31.6	Lost	33.3	43.2	Lost
MSAQ22	Leylands Road Burgess Hill	36.0	36.8	36.0	29.6	31.3	26.7	27.9	26.0	33.1	31.0	39.5	32.7

Appendix C:

Annualisation of results from site MSAQ18

Diffusion Tube Site	Annual mean (ug/m3) (Am)	Period mean (ug/m3) (Pm)	Ratio (Am/Pm)
MSAQ14	35.7	42.4	0.8420
MSAQ15	38.2	42.6	0.8967
MSAQ16	24.4	24.3	1.0041
MSAQ17	26.8	27.4	0.9781
		Average (Ra)	0.9302
The estimate of the annual mean for site MSAQ18 is 37.8 * 0.9302			35.2