2011 Air Quality Detailed Assessment of Coalville AQMA

for

North West Leicestershire District Council

In fulfilment of

Part IV of the Environment Act 1995

Local Air Quality Management

Date: March 2011

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Executive Summary

A Detailed assessment was undertaken to determine if the Area of the Coalville Air Quality Management Area (AQMA) could be reduced.

The detailed assessment involved comparing monitoring data with air quality objectives and where necessary correcting this data in line with the technical guidance.

The report has found that there is no exceedance of the annual mean Air Quality Objective for NO_2 along the length of Bardon Road and the AQMA can be revoked in this area..

The report showed that the Annual mean Air Quality Objective was being exceeded in the vicinity of Broomleys junction and that the AQMA should be retained in this area.

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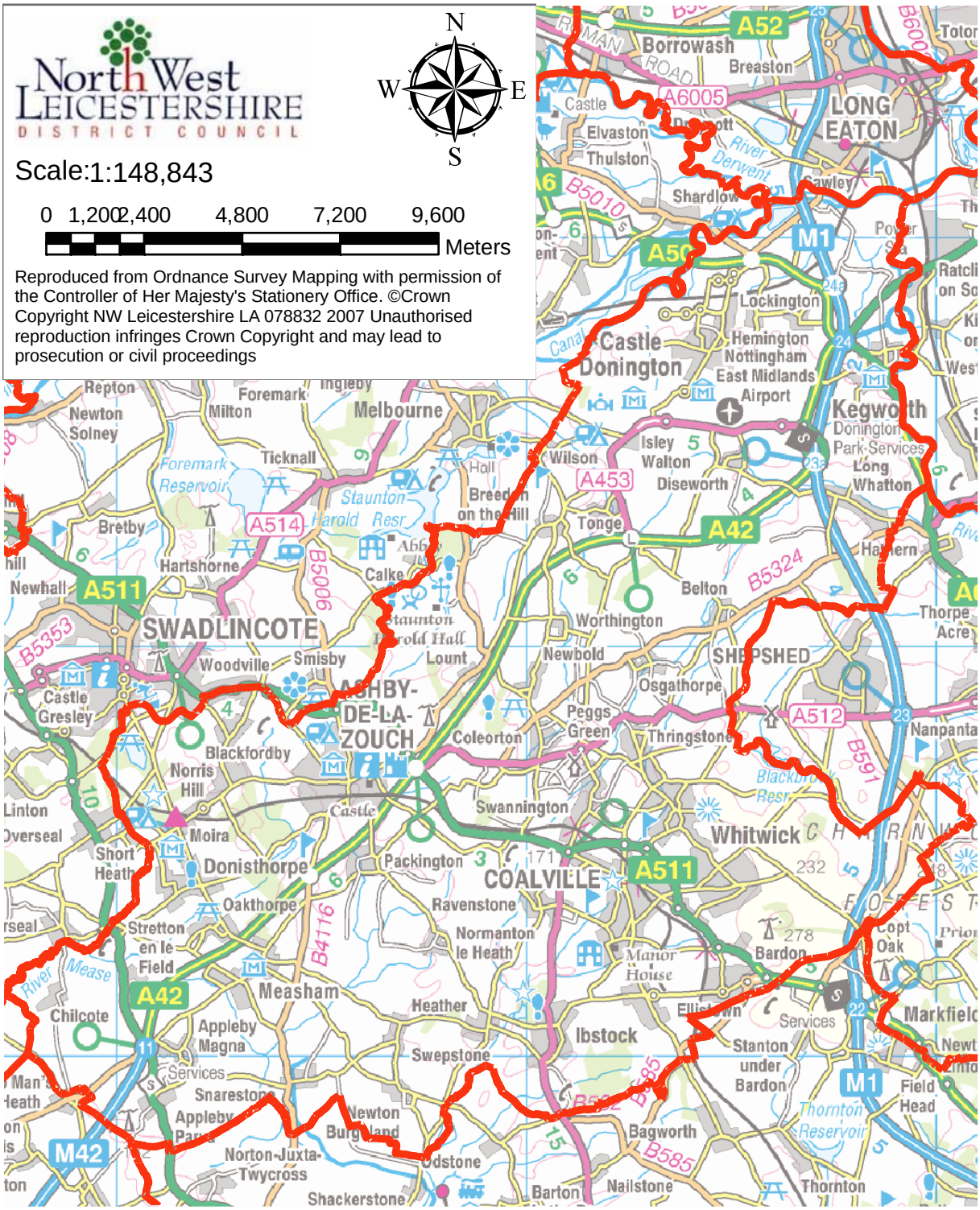
1.1 Description of Local Authority Area

Figure 1 Map of North West Leicestershire District



North West Leicestershire lies in the East Midlands Region and is both the name and geographical location. The district is situated in the heart of the National Forest and lies between Leicester, Burton-on-Trent, Derby and Nottingham, covering 105 square miles. The district is mostly rural with a large extent of industry historically from coal mining, but more recently with Nottingham East Midlands Airport and large quarries. The population of 90,600 people (June 2009)[33] live mainly in the principle towns of Coalville and Ashby-de-la-Zouch; and the large villages of Castle Donington, Kegworth and Ibstock. Three established main roads run through the district, the M42/A42 between Birmingham and Nottingham, the M1 and the A50/A511 from Leicester to Burton-on-Trent.

1.2 Purpose of Detailed Assessment Report

This report has been written as an evidence base for the reduction in area of the Coalville AQMA.

1.3 Locations Being Assessed in this Report

This report covers the area declared as an AQMA by *North West Leicestershire District Council Air Quality Management Order 2008 (No. 2)* [15] the area is shown in blue in Figure 4

1.4 Air Quality Objectives

The air quality objectives applicable to Local Air Quality Management (LAQM) in England are set out in the Air Quality (England) Regulations 2000 (SI 2000/0928) [11] and the Air Quality (England) (Amendment) Regulations 2002 (SI 2002/3043) [12]. They are shown in Table 1 which includes the number of permitted exceedences in any given year (where applicable).

Table 1. Air Quality Objectives included in Regulations for the purpose of Local Air Quality Management in England.

Pollutant	Concentration	Measured as	Date to be achieved by
Benzene	16.25 μgm^{-3}	Running annual mean	31.12.2003
	5.00 μgm^{-3}	Running annual mean	31.12.2010
1,3-Butadiene	2.25 μgm^{-3}	Running annual mean	31.12.2003
Carbon monoxide	10.0 μgm^{-3}	Running 8-hour mean	31.12.2003
Lead	0.5 μgm^{-3}	Annual mean	31.12.2004
	0.25 μgm^{-3}	Annual mean	31.12.2008
Nitrogen dioxide	200 μgm^{-3} not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 μgm^{-3}	Annual mean	31.12.2005
Particles PM_{10} (gravimetric)	50 μgm^{-3}, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 μgm^{-3}	Annual mean	31.12.2004
Particles $PM_{2.5}$ (gravimetric) (not currently included in regulations)	25 μgm^{-3} (target)	Annual mean	2020
Sulphur dioxide	350 μgm^{-3}, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 μgm^{-3}, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 μgm^{-3}, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

1.5 Summary of Previous Review and Assessments

Six AQMAs were designated in North West Leicestershire during the first round of review and assessment for the level of nitrogen dioxide concentrations. After Further Assessments it was determined that only two of these locations required AQMA designations and the remaining four were revoked. The Update and Screening Assessment undertaken in 2006 [1] concluded that these two sites should remain AQMAs and identified three additional locations where Detailed Assessments should be undertaken to determine whether new AQMAs were required for nitrogen dioxide concentrations. The two AQMAs designated during the first round are presented in Figure 2 and Figure 3.

The Detailed Assessment [2] undertaken in September 2007 of the three locations identified as possible areas for AQMAs in the USA 2006 [1], the three locations were High Street / Bondgate in Castle Donington, Broom Leys Road, Coalville and Bardon Road, Coalville, found that exceedances of the nitrogen dioxide objective were occurring in Castle Donington at properties located next to the carriageway along High Street and Bondgate due to traffic emissions. Monitoring at both locations in Coalville identified nitrogen dioxide concentrations that exceeded the mean annual objective during 2005, 2006 and 2007. The Detailed Assessment concludes that AQMAs should be designated at all three locations. As a result of these reports, two additional AQMAs were designated; the first in Castle Donington, presented in Figure 4, and the second covering Broom Leys Road and Bardon Road in Coalville, presented in Figure 5.

The Air Quality Progress Report conducted in April 2008 [3] recommended that a detailed assessment of the village of Copt Oak and the area surrounding East midlands airport be undertaken to determine if AQMA's should be determined at these locations.

The Detailed Assessment of Copt Oak published in January 2009 [5] found that an AQMA should be declared and that the area should cross

the district boundary to include an area within the borough of Hinckley and Bosworth as shown in Figure 6.

The Detailed assessment of East midlands airport published in March 2009 [4] concluded that the Air quality objective for NO_2 would not be exceeded within 1000m of the airport as a result of air traffic emissions.

The further assessment of Bardon Road, Coalville published in February 2009 [6] supported the original declaration of the AQMA comprising the four residential properties at Broom Leys Junction and the one hundred and seventy two residential properties on Bardon Road.

The further assessment of High street castle Donington published in April 2009 [7] supported the original declaration of the AQMA comprising ninety one residential properties on High Street and Bondgate, Castle Donington.

The update and screening assessment published October 2009 [8] found that a detailed assessment for SO_2 is required in some areas of the district in relation to the burning of solid fuel, to which this report relates. The report also recommended that the M1 AQMA is expanded to include an exceedance of the 1-hour mean objective for NO_2 as the yearly mean has exceeded 60 μgm^{-3}.

The Progress Report published in April 2010 [9] found no significant change in the district.

A Further Assessment for the AQMA declared at Copt Oak is currently being undertaken.

Figure 2 Kegworth AQMA (highlighted in blue).

0 50 100 200 300 400

1:4,928 Meters

Figure 3 M1 AQMA (Outlined in Dark Blue)

0 500 1,000 2,000 m

1:29,179

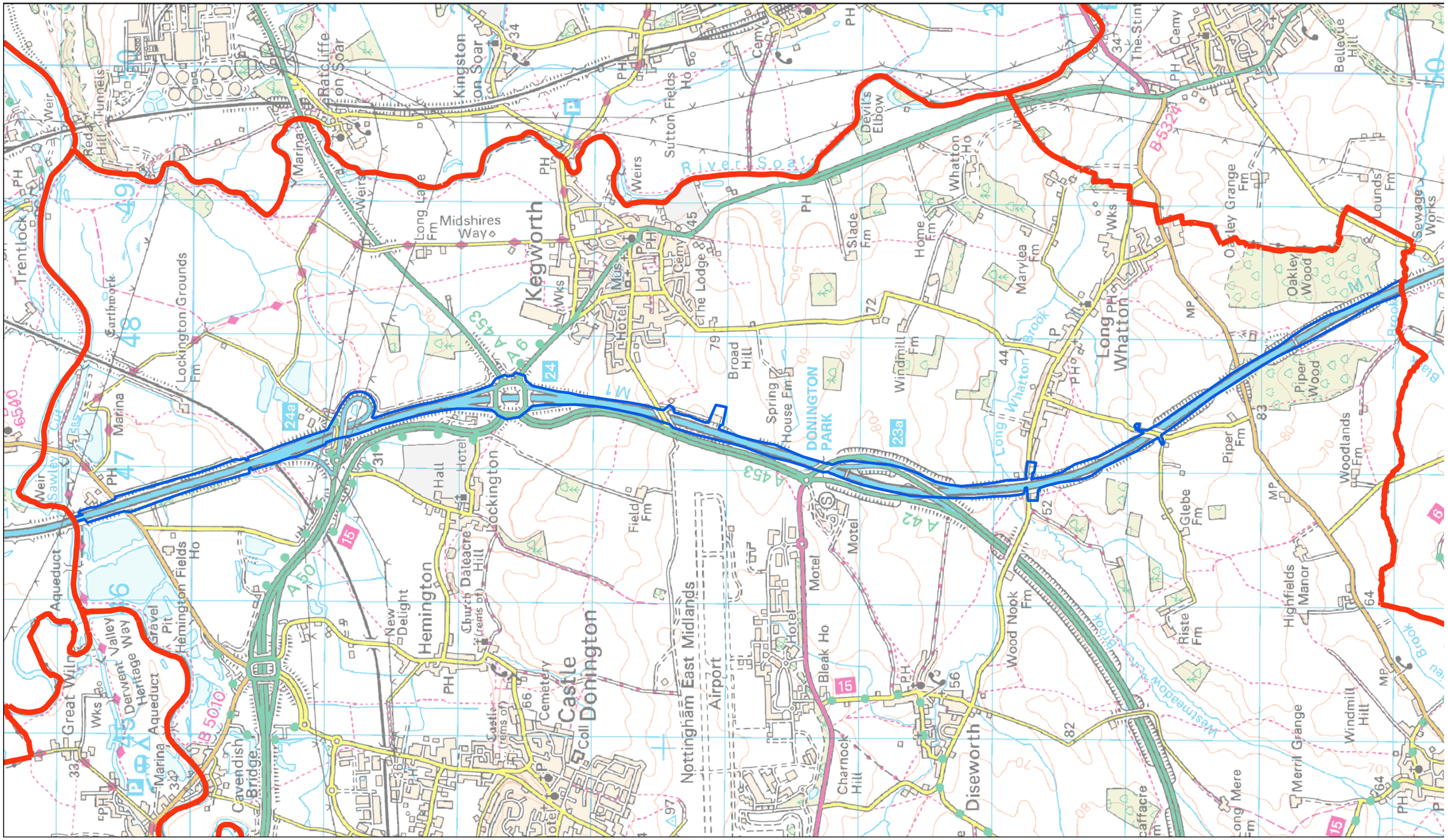
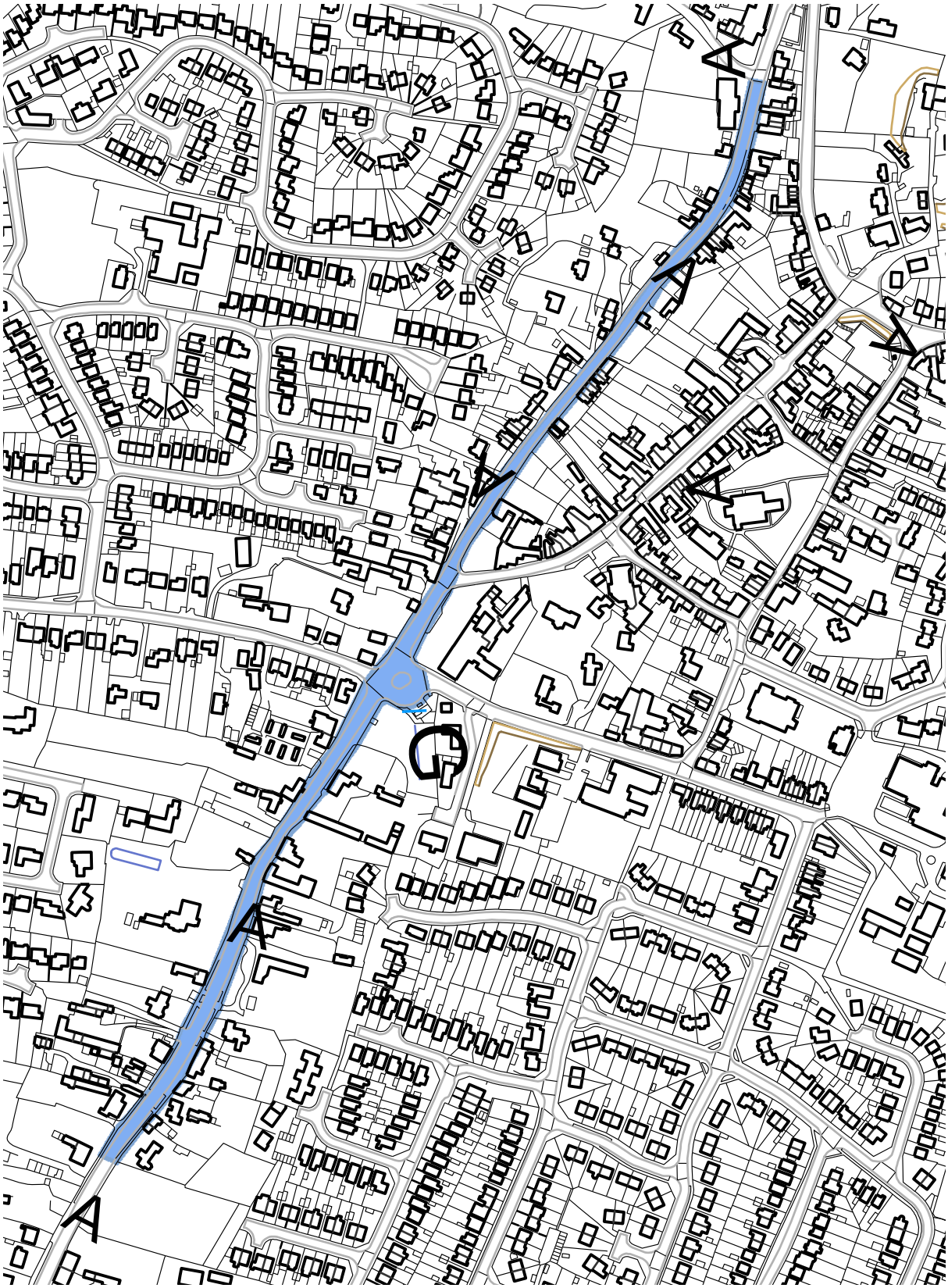


Figure 4 Castle Donington Air Quality Management Area

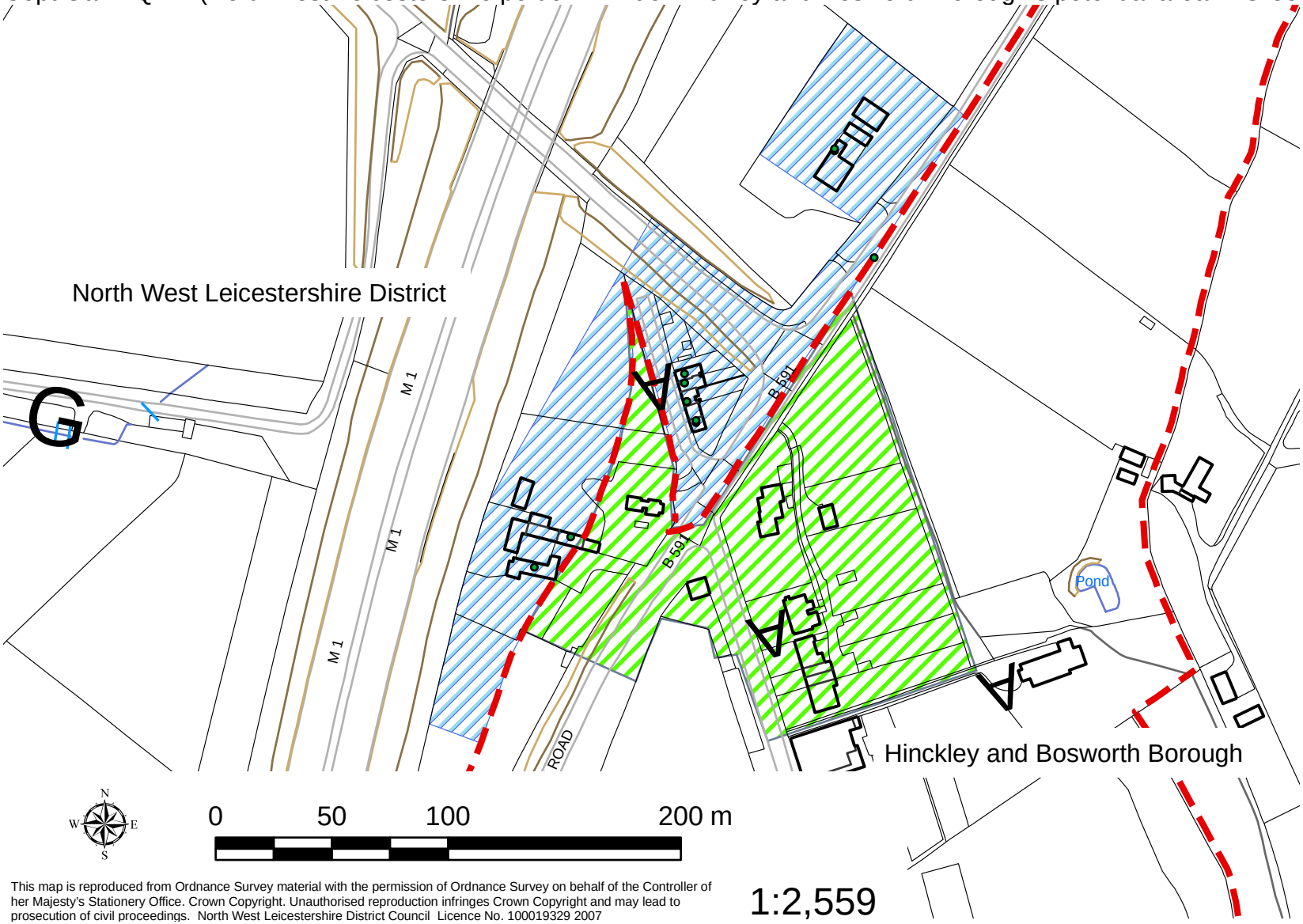


1:3,556 0 25 50 100 150 200 Meters

Figure 5 Coalville Air Quality Management Area (Bardon Road and Broom Leys Junction)

1:9,149 0 95 190 380 570 760 Meters

Figure 6 Copt Oak AQMA (North west Leicestershire portion in Blue Hinckley and Bosworth Borough's potential area in Green)



2 Methodology

This report will look at monitoring data collected in and around the AQMA. The data looked at will be spread over several years in order to show that areas of the AQMA which are not exceeding the annual mean Air Quality Objective for NO_2 have not exceeded for several years and are there for unlikely to.

Where appropriate the measured values will be projected forward to 2020 to show that exceedances are unlikely in future years.

2.1 Projecting measured annual mean roadside nitrogen dioxide concentrations to future years

The technical guidance LAQM.TG(09) [21] defines a method for projecting the NO_2 concentration to future years in paragraph 2.13 page 2-3 and box 2.1 on page 2-4. A correction to box 2.1 was published in an Errata published in 2010 [22]. The corrected version of Box 2.1 is reproduced in Table 2 for reference.

As North West Leicestershire District council has data for 2008, 2009 and 2010 for the locations to be assessed the projection will be conducted using each measured year.

As Castle Donington is not located in Central, Inner or Outer London the adjustment factors for the Rest of the UK will be used.

Table 2. Box 2.1 from *Errata to LAQM.TG(09): Is the example in box 2.1 of TG(09) correct?*

Box 2.1: Projecting measured annual mean roadside nitrogen dioxide concentrations to future years

Year	Adjustment factor to be applied			
	Central London	Inner London	Outer London	Rest of UK
2008	1.000	1.000	1.000	1.000
2009	0.940	0.926	0.916	0.916
2010	0.881	0.853	0.832	0.832
2011	0.824	0.799	0.780	0.783
2012	0.766	0.746	0.729	0.735
2013	0.709	0.692	0.678	0.687
2014	0.652	0.639	0.626	0.639
2015	0.595	0.585	0.575	0.591
2016	0.554	0.549	0.542	0.557
2017	0.513	0.513	0.508	0.523
2018	0.472	0.477	0.475	0.489
2019	0.430	0.441	0.442	0.454
2020	0.389	0.405	0.408	0.420

Example:

The measured NO_2 concentration at a roadside site in Outer London in 2009 is 45.8 µgm^{-3}. The projected concentration for 2010 would be

$$45.8 \times \left(\frac{0.832}{0.916}\right) = 41.6\,\mu\text{gm}^{-3}$$

Roadside locations are typically within 1 to 5 metres of the kerbside, but may extend up to 15 metres depending upon the road configuration and traffic flow.

Modified from Box 2.1 in *Errata to TG(09): Is the example in Box 2.1 of TG(09) correct?* [22]

From the example given in Box 2.1 it is believed the projection factors should be used as follows

$$Y_p = Y_m \times \frac{AF_p}{AF_m}$$

Where:

Y_p = NO_2 concentration for the Projected Year

Y_m = Measured NO_2 Concentration

AF_p = Adjustment factor for the year to be projected

AF_m = Adjustment factor for the year NO_2 was measured

2.2 Façade Correction

Some Tubes will require a façade correction, the corrections were undertaken using the procedure outlined in Box 2.3: Predicting nitrogen dioxide concentrations at different distances from road of the technical guidance (reproduced in Table 3)

Table 3. Box 2.3: Predicting nitrogen dioxide concentrations at different distances from roads?

Box 2.3: Predicting nitrogen dioxide concentrations at different distances from roads

A method has been developed to allow NO_2 measurements made at one distance from a road to be used to predict concentrations at a different distance from the same road. It is appropriate for distances between 0.1 m and 140 m of the kerb.

Step 1: Identify the local background concentration in µgm-3, either from local monitoring or from the national maps published at www.airquality.co.uk. (Note that the background concentration must be less than the measured concentration).

Step 2: apply the following calculation

$$C_z = \left(\frac{C_y - C_b}{-0.5476 \times Ln(D_y) + 2.7171} \right) \times \left(-0.5476 \times Ln(D_z) + 2.7171 \right) + C_b$$

Where:

Cz is the total predicted concentration (µgm-3) at distance Dz;
Cy is the total measured concentration (µgm-3) at distance Dy;
Cb is the background concentration (µgm-3);
Dy is the distance from the kerb at which concentrations were measured;
Dz is the distance from the kerb (m) at which concentrations are to be predicted.
Ln(D) is the natural log of the number D.

Results derived in this way will have a greater uncertainty than the measured data. Further assistance with this procedure and interpretation of the results can be obtained from the Review and Assessment helpdesk (www.uwe.ac.uk/aqm/review).

Calculator

The equation above is available as a simple calculator (available at http://www.airquality.co.uk/archive/laqm/tools.php). This is set up to work from 0.1 to 50 m from the kerb, as this is the range that is likely to be relevant for Local Air Quality Management (LAQM) work. Kerbside sites should be treated as being at 0.1 m from the kerb. The calculator works for receptors either closer to or further from the kerb than the monitor. The greater the distance between the receptor and monitor, the greater the uncertainty in the derived receptor concentration. It is therefore recommended that if the receptor is further from the kerb than the monitor it should be no more than 20m away. If the receptor is closer to the kerb, then it should be no more than 10 m from the monitor.

Modified from Box 2.3 page 2-6 of the technical Guidance 2009 [21] (modification are improved layout of equation and insertion of hyperlinks where footnotes are present in the original.

3 Summary of Monitoring Undertaken

North West Leicestershire District Council has undertaken extensive diffusion tube monitoring within the Coalville AQMA. Details of the sites is presented in Table 4. the locations are shown on the map in Figure 7.

Table 4. Diffusion tube monitoring locations

Site details	location	Location Type	Grid Reference		Our Tube No.	Pollutant monitored	In AQMA ?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Worst-case Location ?	Monitoring Period	
			X	Y							Start	End
86684 - NWLeicestershire 03N	181 Bardon Rd	Roadside	444139	313222	3	NO_2	Y	0	10	Y	2008	2010
86685 - NWLeicestershire 04N	244 Bardon Rd	Roadside	444302	313048	4	NO_2	Y	7.5	1	Y	2005	2010
86686 - NWLeicestershire 05N	62 Bardon Rd	Roadside	443748	313528	5	NO_2	Y	0	13.9	Y	2008	2010
86687 - NWLeicestershire 06N	Broomleys junction (1)	Roadside	443632	314026	6	NO_2	Y	5.8	2	Y	2005	2010
86688 - NWLeicestershire 07N	Broomleys junction (2)	Roadside	443660	314002	7	NO_2	Y	5.8	2	Y	2005	2010
	87 Bardon Rd	Roadside	443845	313487	47	NO_2	Y	0	11	Y	2008	2009
	134 Bardon Rd	Roadside	444033	313274	48	NO_2	Y	0	13	Y	2008	2009
	Bardon Rd W	Roadside	443840	313485	27	NO_2	Y	5.5	6.9	Y	2006	2009

Figure 7 Map of monitoring points near to Coalville AQMA

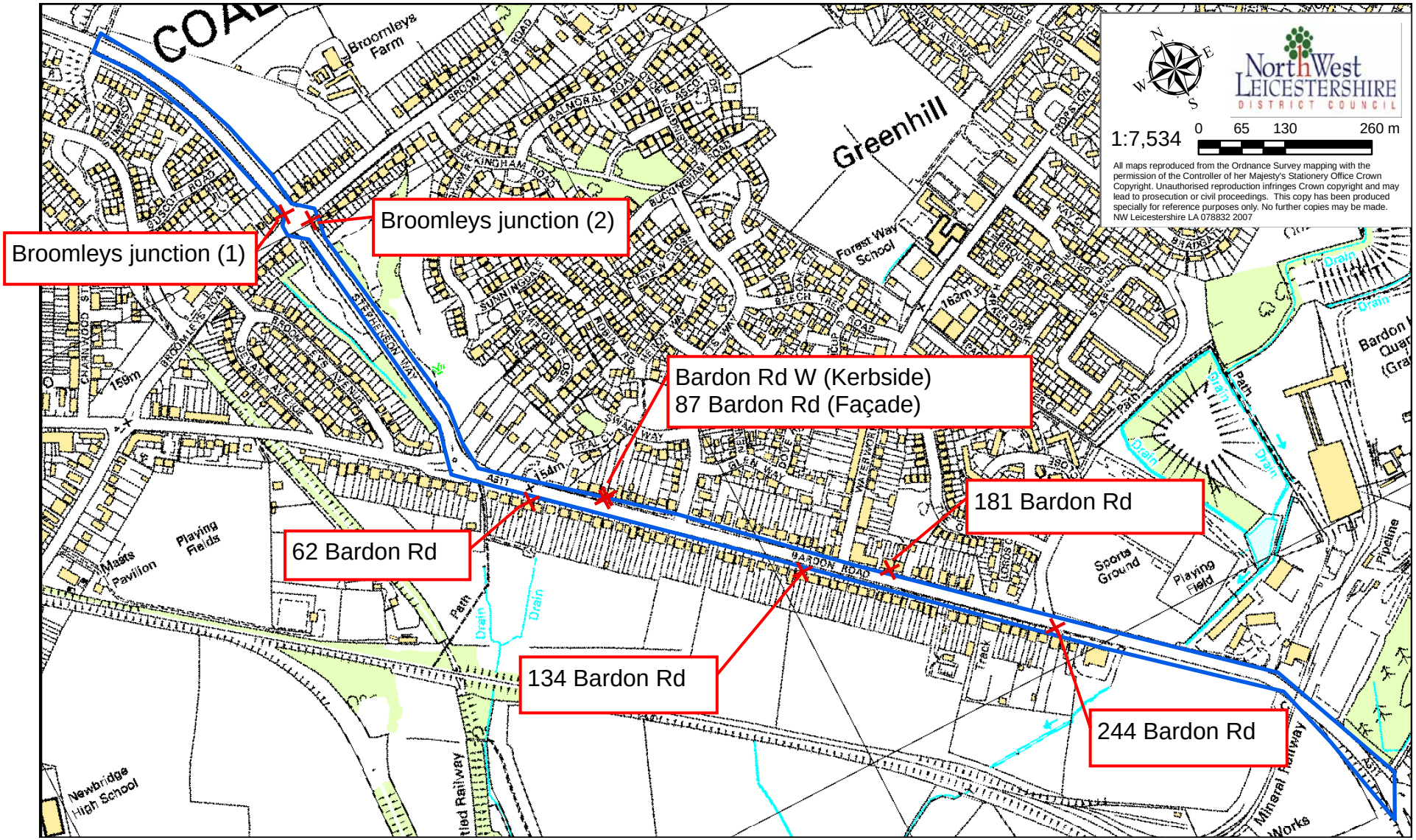


Table 5. Diffusion tube Results – Bias Adjusted

Site details	location	2005	2006	2007	2008	2009	2010
86684 - NWLeicestershire 03N	181 Bardon Rd				27.90	25.86	33.71
86685 - NWLeicestershire 04N	244 Bardon Rd	**45.73**	34.07	32.30	31.88	31.47	**43.88**
86686 - NWLeicestershire 05N	62 Bardon Rd				23.29	21.16	30.06
86687 - NWLeicestershire 06N	Broomleys junction (1)	**46.37**	**40.32**	**40.15**	**40.05**	**39.37**	**42.12**
86688 - NWLeicestershire 07N	Broomleys junction (2)	**45.76**	**37.57**	32.96	**39.63**	35.57	**51.98**
	87 Bardon Rd				23.81	24.48	
	134 Bardon Rd				25.82	25.78	
	Bardon Rd W		**42.24**	**48.10**	**44.26**	**38.65**	

	Annualised mean (See Box 3.2 of TG(09))
	Value exceeds 60 µgm^{-3}

Table 6. Façade corrected Data

Site details	location	2005	2006	2007	2008	2009	2010
86685 - NWLeicestershire 04N	244 Bardon Rd	29.94	25.56	23.03	24.50	24.66	31.66

Table 7. Projected future concentrations

Site details	Tube location	Measured Values (Bias Adjusted)			Projected measured annual mean roadside NO_2												
		2008	2009	2010	Year used for projection	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
86684 - NWLeicestershire 03N	181 Bardon Rd	27.90	25.86	33.71	2010			31.72	29.78	27.84	25.89	23.95	22.57	21.19	19.81	18.39	17.02
					2009		23.49	22.11	20.75	19.40	18.04	16.68	15.72	14.77	13.81	12.82	11.86
					2008	25.56	23.21	21.85	20.51	19.17	17.83	16.49	15.54	14.59	13.64	12.67	11.72
86685 - NWLeicestershire 04N	244 Bardon Rd	31.88	31.47	43.88	2010			**41.30**	**38.76**	**36.23**	33.70	31.17	29.38	27.58	25.79	23.94	22.15
					2009		28.58	26.90	25.25	23.60	21.95	20.30	19.14	17.97	16.80	15.60	14.43
					2008	29.20	26.52	24.96	23.43	21.90	20.37	18.84	17.76	16.67	15.59	14.47	13.39
86686 - NWLeicestershire 05N	62 Bardon Rd	23.29	21.16	30.06	2010			28.29	26.56	24.82	23.09	21.35	20.12	18.90	17.67	16.40	15.17
					2009		19.22	18.09	16.98	15.87	14.76	13.65	12.87	12.08	11.30	10.49	9.70
					2008	21.33	19.38	18.24	17.12	16.00	14.88	13.76	12.97	12.18	11.39	10.57	9.78
86687 - NWLeicestershire 06N	Broomleys junction (1)	**40.05**	**39.37**	**42.12**	2010			**39.64**	**37.21**	34.78	32.35	29.92	28.20	26.48	24.76	22.98	21.26
					2009		35.76	33.65	31.59	29.53	27.46	25.40	23.94	22.48	21.02	19.51	18.05
					2008	**36.69**	33.32	31.36	29.44	27.51	25.59	23.67	22.31	20.95	19.58	18.18	16.82
86688 - NWLeicestershire 07N	Broomleys junction (2)	**39.63**	35.57	**51.98**	2010			**48.92**	**45.92**	**42.92**	**39.92**	**36.92**	34.80	32.67	30.55	28.36	26.24
					2009		32.31	30.41	28.54	26.68	24.81	22.95	21.63	20.31	18.99	17.63	16.31
					2008	**36.30**	32.97	31.03	29.13	27.23	25.32	23.42	22.07	20.73	19.38	17.99	16.64
	87 Bardon Rd	23.81	24.48		2010												
					2009		22.24	20.93	19.64	18.36	17.08	15.79	14.89	13.98	13.07	12.13	11.22
					2008	21.81	19.81	18.64	17.50	16.36	15.21	14.07	13.26	12.45	11.64	10.81	10.00
	134 Bardon Rd	25.82	25.78		2010												
					2009		23.42	22.04	20.69	19.34	17.98	16.63	15.68	14.72	13.76	12.78	11.82
					2008	23.65	21.48	20.22	18.98	17.74	16.50	15.26	14.38	13.50	12.63	11.72	10.84
	Bardon Rd W	**44.26**	**38.65**		2010												
					2009		35.11	33.04	31.01	28.99	26.96	24.94	23.50	22.07	20.63	19.16	17.72
					2008	**40.54**	**36.82**	34.66	32.53	30.41	28.28	26.16	24.65	23.15	21.64	20.09	18.59

4 Analysis of Results

The monitoring results for the past 5 years is presented in Table 5.

The Tubes at 181 Bardon Road, 134 Bardon Road, and 62 Bardon Road, which are on the façade of domestic properties, did not record an exceedance of the annual mean AQO for NO_2 over the last 5 years.

The Tube at 244 Bardon Road recorded exceedance of the annual mean AQO for NO_2 in 2005 and 2010 however when a façade correction is applied to the site (results shown in Table 6) there is no exceedance of the annual mean AQO for NO_2 at the relevant receptor.

The Bardon Road W Tube recorded exceedances of the annual mean AQO for NO_2 in 2006, 2007 and 2009 however tube 87 Bardon Road is on the façade of the nearest receptor which did not record an exceedance of annual mean AQO.

The diffusion tubes located at the Broomleys Junction both recorded exceedances of the annual mean AQO several times over the last 5 years.

5 Conclusions and Proposed Actions

As an exceedance of the annual mean AQO for NO_2 has not been detected at relevant receptor locations along the length of Bardon Road. As no exceedances of the AQO have been recorded in the area marked in green in Figure 8 the area should be revoked.

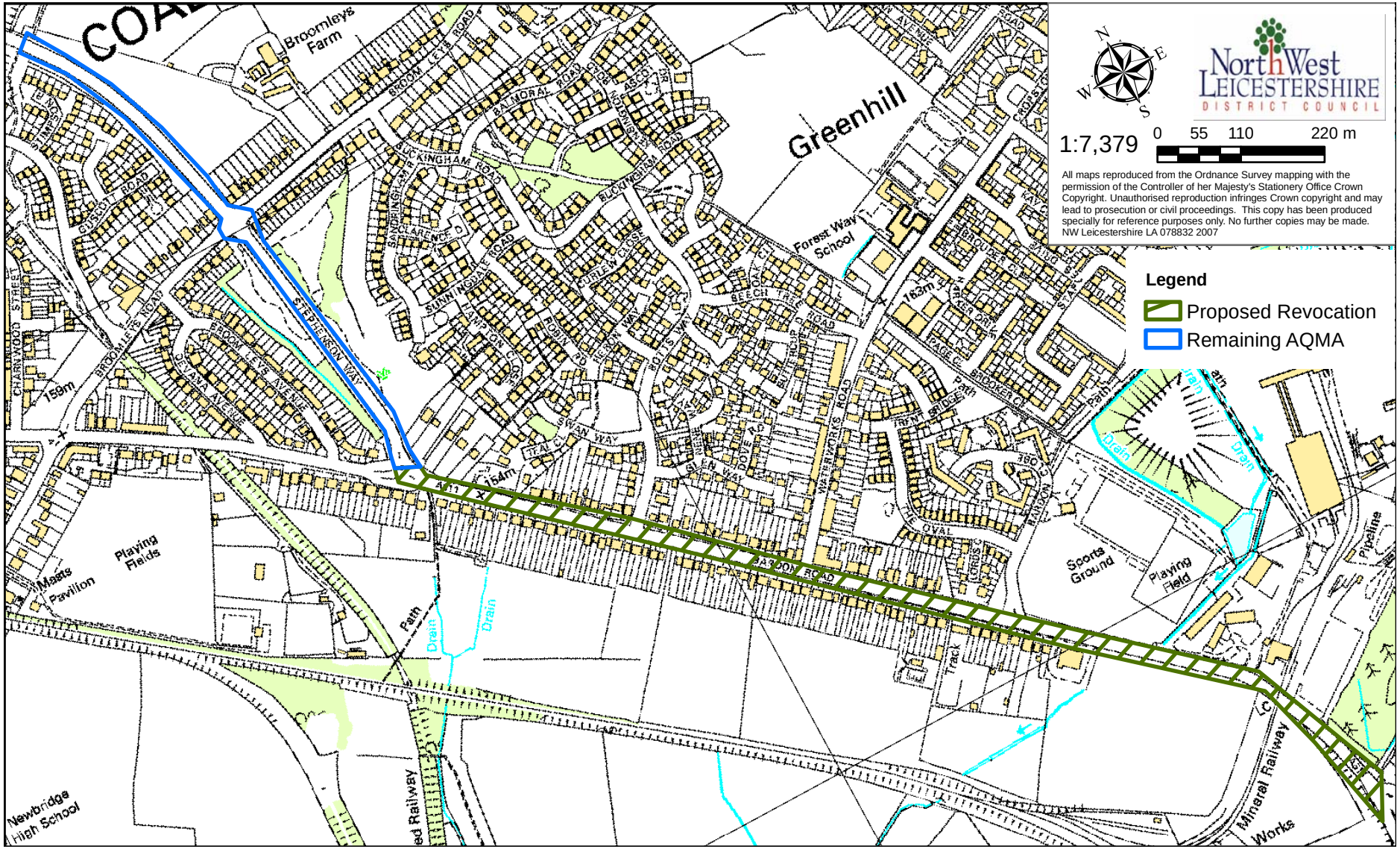
It has been shown that the AQO is being exceeded at Broomleys junction it is therefore appropriate that the area marked in blue in Figure 8 be retained as an AQMA. However a lack of data within the majority of the area mean that new monitoring locations should be established within this area.

5.1 Proposed Actions

Revoke the area of the AQMA marked in Green in Figure 8.

Create 2 new monitoring points within the area marked in blue in Figure 8. 1 point to the North of Broomleys junction to assess the impact on the housing estate, and 1 point to the south to assess the impact on the houses near to the roundabout with Stephenson Way and Bardon Road.

Figure 8 Proposed Amendments of the Coalville AQMA



6 References

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[2] North West Leicestershire District Council, 2007, *Air Quality Detailed Assessment for Coalville and Castle Donington*. Coalville: North West Leicestershire District Council.

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6.2 Acts, Statutory Instruments, and Orders

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6.3 British Standards

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6.4 Technical guidance

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7 Appendices

Appendix A QA:QC Data

2010 Tube Data

- Diffusion Tube Bias Adjustment Factors

  North West Leicestershire District Councils tube preparation and analysis was done by Environmental Scientifics Ltd for January February and March. Using the 20% TEA in water method. preparation and analysis for April through December was done by Lambeth Scientific Services using the 50% TEA in Acetone method

  Bias adjustment factor from Review and assessment helpdesk spreadsheet (v11032011) [28] will be used. As more than one metod of analysis has been used the most conservative of the 2 bias adjustment factors will be used.

  The National bias adjustment factors spreadsheet has no collocation study for Lambeth Scientific Services in 2010 as such the 2009 bias adjustment of 1.02 will be used

  The National bias adjustment factors spreadsheet has a bias adjustment factor of 0.82 for Environmental Scientific Services 20% TEA in water.

  As the bias adjustment of 1.02 is the most conservative

- QA/QC of diffusion tube monitoring

  Lambeth Scientific has participated in AEA intercomparison and WASP for at least the past 5 years. Rated as "Good" in WASP. [29]

2009 Tube Data

- Diffusion Tube Bias Adjustment Factors

North West Leicestershire District Councils tube preparation and analysis was done by Gradko International, Method 50% TEA in Acetone

Bias adjustment factor from Review and assessment helpdesk spreadsheet (v11032011)[28] is 0.97 for 50% TEA in Acetone

- QA/QC of diffusion tube monitoring

  Gradko has participated in AEA intercomparison and WASP for at least the past 5 years. Rated as "Good" in WASP. [29]

2008 Tube Data

- Diffusion Tube Bias Adjustment Factors

  North West Leicestershire District Councils tube preparation and analysis was done by Gradko International, Method 50% TEA in Acetone

  Bias adjustment factor from Review and assessment helpdesk spreadsheet (v11032011)[28]is 0.94 for 50% TEA in Acetone

- QA/QC of diffusion tube monitoring

  Gradko International were rated as "Good" in WASP for 2008 [29] overall and in each monthly trial, the AEA intercomparison results are bias -11%, precision 3%

2007 Tube Data

- Diffusion Tube Bias Adjustment Factors

  North West Leicestershire District Councils tube preparation and analysis was done by Gradko International, Method 50% TEA in Acetone

  Bias adjustment factor from Review and assessment helpdesk spreadsheet (v11032011)[28] 0.99 for 50% TEA in Acetone

- QA/QC of diffusion tube monitoring

  Gradko International were rated as "Good" in WASP for rounds 97 – 101 (Apr 2007 – Apr 2008) [29]

2006 Tube Data

- Diffusion Tube Bias Adjustment Factors

  North West Leicestershire District Councils tube preparation and analysis was done by Gradko International, Method 50% TEA in Acetone

  Bias adjustment factor from Review and assessment helpdesk spreadsheet (v11032011)[28] 1.01 for 50% TEA in Acetone

- QA/QC of diffusion tube monitoring

WASP Scores are unavailable for this year [29]

Appendix B Façade Correction data

	year	Location Type	Grid Reference		Our Tube No.	Pollutant monitored	In AQMA ?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Worst-case Location ?	Measurement Period (ugm^{-3}) (boxes highlighted in red are +/- 2 standard deviations from the mean. Boxes in green have been exluded as outliers)												Average	Bias corrected	Bias	Percent data coverage	periods	standard deviation	façade correction - fall-off in nitrogen dioxide concentrations with distance from road See Box 2.3 pg 2-6 of LAQM.TG(09)			
			X	Y							Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec							background concentration grid reference		relevant background concentration	receptor correction for roadside tubes (Bias adjusted mean used)
																													X	Y		
244 bardon road	2005	Roadside	444302	313048	4	NO_2	Y	7.5	1	Y	47	75	45	39	32	43	40	19	38	35	46	40	**41.54**	**40.29**	0.97	100 %	12	13.01	443500	312500	16.30	29.94
244 bardon road	2006	Roadside	444302	313048	4	NO_2	Y	7.5	1	Y				29	30	37	34	36	35	35			33.74	33.06	0.98	58.3 %	7	2.97	443500	312500	15.68	25.56
244 bardon road	2007	Roadside	444302	313048	4	NO_2	Y	7.5	1	Y	27		23	44	36	33	32	34				32	32.63	29.04	0.89	66.7 %	8	6.18	443500	312500	15.12	23.03
244 bardon road	2008	Roadside	444302	313048	4	NO_2	Y	7.5	1	Y	30			29			28	30	37		41	42	33.91	31.20	0.92	58.3 %	7	5.90	443500	312500	15.68	24.50
244 bardon road	2009	Roadside	444302	313048	4	NO_2	Y	7.5	1	Y	51	47	36			16	30	26	33	44	33	35	34.96	31.47	0.90	83.3 %	10	10.23	443500	312500	15.68	24.66
244 bardon road	2010	Roadside	444302	313048	4	NO_2	Y	7.5	1	Y	56	57	62	54	32	34	34	26	23	33	39	65	**42.92**	**43.78**	1.02	100. %	12	14.85	443500	312500	15.68	31.66