2009 Air Quality Updating and Screening Assessment for *Harborough District Council*

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

Date June 2009

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Executive Summary

Under Part IV of the Environment Act 1995 there is a requirement for all Local Authorities to assess their local air quality and to predict future conditions against the National Air Quality Objectives.

This report has been compiled as part of the forth round of the air quality assessment for Harborough District Council. The Update and Screening Assessment has been carried out in accordance with the requirements of the DEFRA guidance TG (09).

The purpose of this report is to review the findings of the original Review and Assessment undertaken and the previous Update and Screening Assessments to:

- Identify any changes that have occurred in the district which may effect the air quality, and:
- Take into account any improvements that have occurred in the prediction methods used for assessing the future air quality.

The report examines the impact of the following areas on local air quality.

- New monitoring data
- Road traffic sources
- Other transport sources
- Industrial sources
- Commercial and domestic sources
- Fugitive or uncontrolled sources

Generally the air quality in Harborough district is very good; however the air quality in Lutterworth remains high and exceeds the national air quality objective. During 2008 it became apparent that the diffusion tubes in the area were showing a potential exceedence of the objective levels outside of the existing Air Quality Management Area (AQMA). It was necessary to relocate some of the diffusion tubes to confirm the initial findings, and it is felt that a more detailed assessment would be required to confirm the extent to which the existing AQMA has to be extended.

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1 Introduction

1.1 Description of Local Authority Area

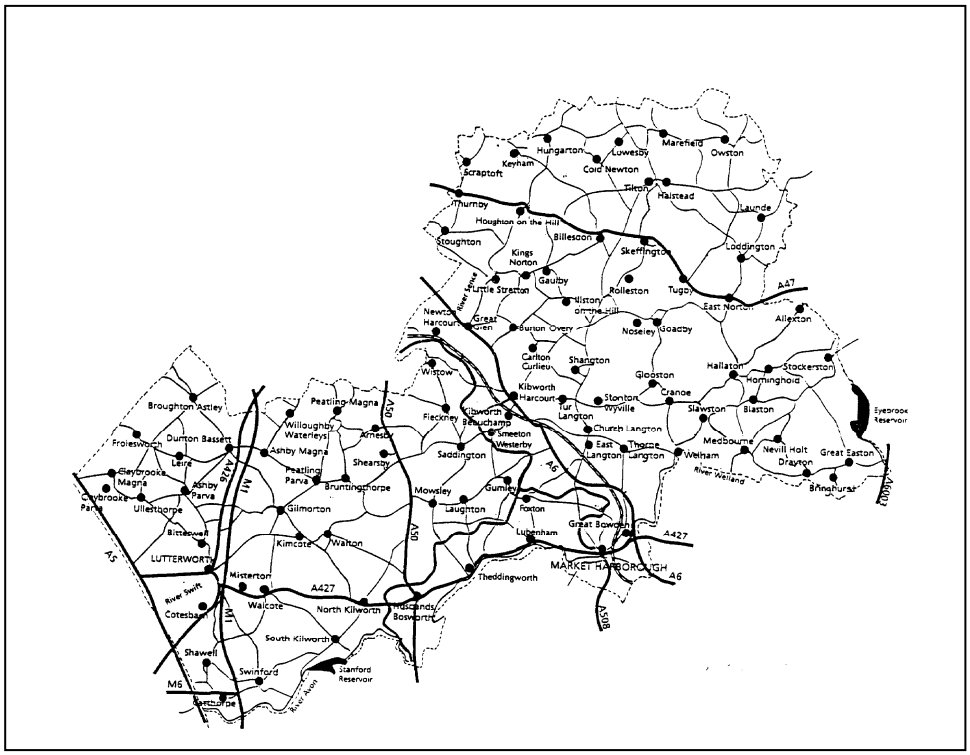
Harborough District Council is a diverse, largely rural authority covering approximately 230 square miles of Southern Leicestershire, as shown in figure one. Geographically it is the largest of the Leicestershire districts. Approximately 77,000 people live within the District.

The two major population centres are the market towns of Market Harborough and Lutterworth, providing the main shopping and business services. These two towns, together with the villages of Thurnby, Bushby and Scraptoft adjoining Leicester City, and the villages of Broughton Astley, Great Glen, Kibworth and Fleckney accommodate 67% of the district population. The remaining residents live in villages varying from populations of several hundreds to hamlets comprising of a handful of dwellings.

The District borders on to the suburbs of Leicester in the north, Rutland to the east, Warwickshire to the west and Northamptonshire to the south. The District is dissected by a number of major roads; these include the M1, and a small section of the M6 and the A426 in the west, and the A6, A47 and A50 in the eastern side. These roads are a major part of the East Midlands road network and consequently are heavily used.

The good communication links have encouraged a number of industrial estates to develop, containing medium sized businesses carrying out a range of coating and spraying activities, moulding, and timber processes. In the south west of the District there is a cluster of mineral activities including sand and gravel extraction, cement batching plants and other associated products

Fig 1. Map of the District



Although agriculture still plays an important role in the local economy, manufacturing and distribution are of ever increasing importance. At the extreme western side of the District is Magna Park, which is

a major warehousing and distribution site, covering approximately 7.4 million sq. ft. A number of the major manufacturers within the UK are located on this site and the 24-hour operation results in a great deal of traffic as most of the products are transported by road. Magna Park is located between the M1 and the A5, therefore a majority of the traffic is directed onto these major roads; however the nearby town of Lutterworth is affected by the increase in road traffic.

1.2 Purpose of Report

This report fulfils the requirements of the Local Air Quality Management 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.

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 micrograms per cubic metre $\mu g/m^3$ (milligrammes per cubic metre, mg/m^3 for carbon monoxide) with the number of exceedences in each year that are permitted (where applicable).

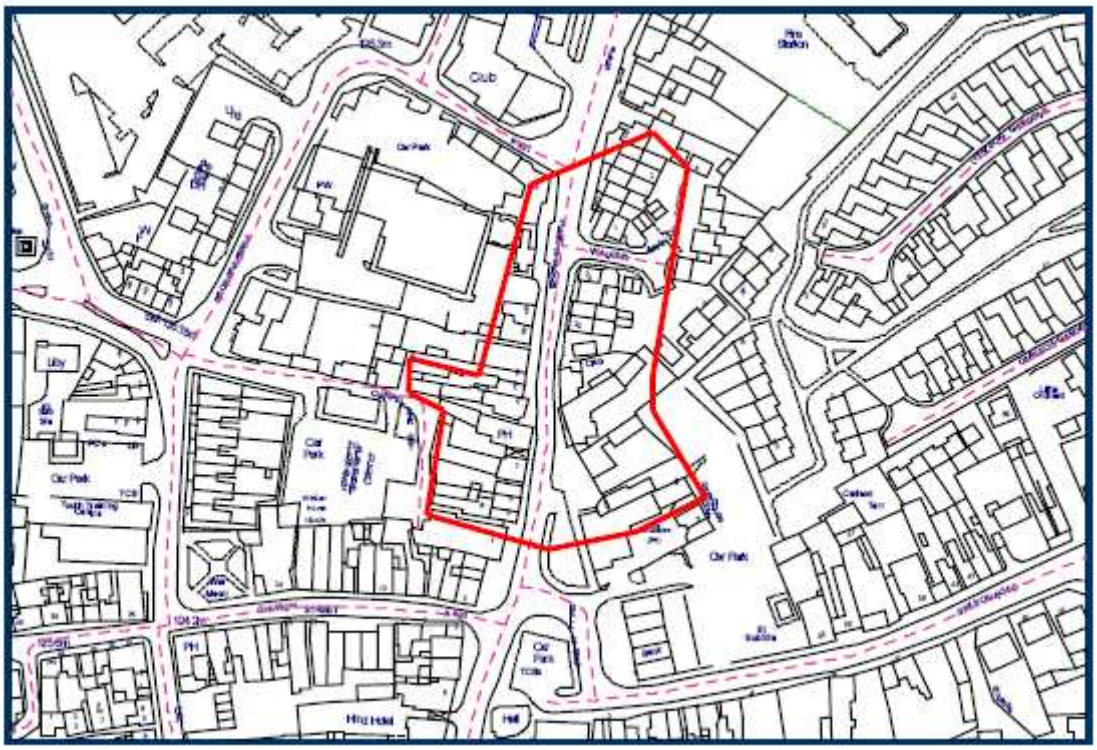
Table 1.1 Air Quality Objectives included in Regulations for the purpose of Local Air Quality Management in England.

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 $\mu g/m^3$	Running annual mean	31.12.2003
	5.00 $\mu g/m^3$	Running annual mean	31.12.2010
1,3-Butadiene	2.25 $\mu g/m^3$	Running annual mean	31.12.2003
Carbon monoxide	10.0 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.5 $\mu g/m^3$	Annual mean	31.12.2004
	0.25 $\mu g/m^3$	Annual mean	31.12.2008
Nitrogen dioxide	200 $\mu g/m^3$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu g/m^3$	Annual mean	31.12.2005
Particles (PM_{10}) (gravimetric)	50 $\mu g/m^3$, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 $\mu g/m^3$	Annual mean	31.12.2004
Sulphur dioxide	350 $\mu g/m^3$, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 $\mu g/m^3$, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 $\mu g/m^3$, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

1.4 Summary of Previous Review and Assessments

The Review and Assessment of the local air quality takes place over a number of stages. The First Stage Review and Assessment carried out in Harborough district concluded that further investigation would be required for Carbon Monoxide, Lead, Particulates and Nitrogen Dioxide. The Second and Third Stage review concluded that with the exception of Nitrogen Dioxide all of the National Air Quality Objectives would be met within the appropriate time frame. As it was anticipated that the nation objective for Nitrogen Dioxide was unlikely to be met in Lutterworth Town Centre, an Air Quality Management Area (AQMA) was declared in July 2001. Fig 2

Fig 2 – Lutterworth Air Quality Management Area



Following the declaration of the Where an Air Quality Management Area has been declared, a Stage 4 assessment is required to give local authorities the opportunity to supplement any information they have already gathered in their earlier review and assessment work.

The findings of the Stage 4 review confirm that the annual average National Air Quality Objective for Nitrogen Dioxide is unlikely to be achieved. New Monitoring Data and an Action Plan was developed which as the source of the problem was traffic related, was incorporated into the Leicestershire County Council Local Transport Plan

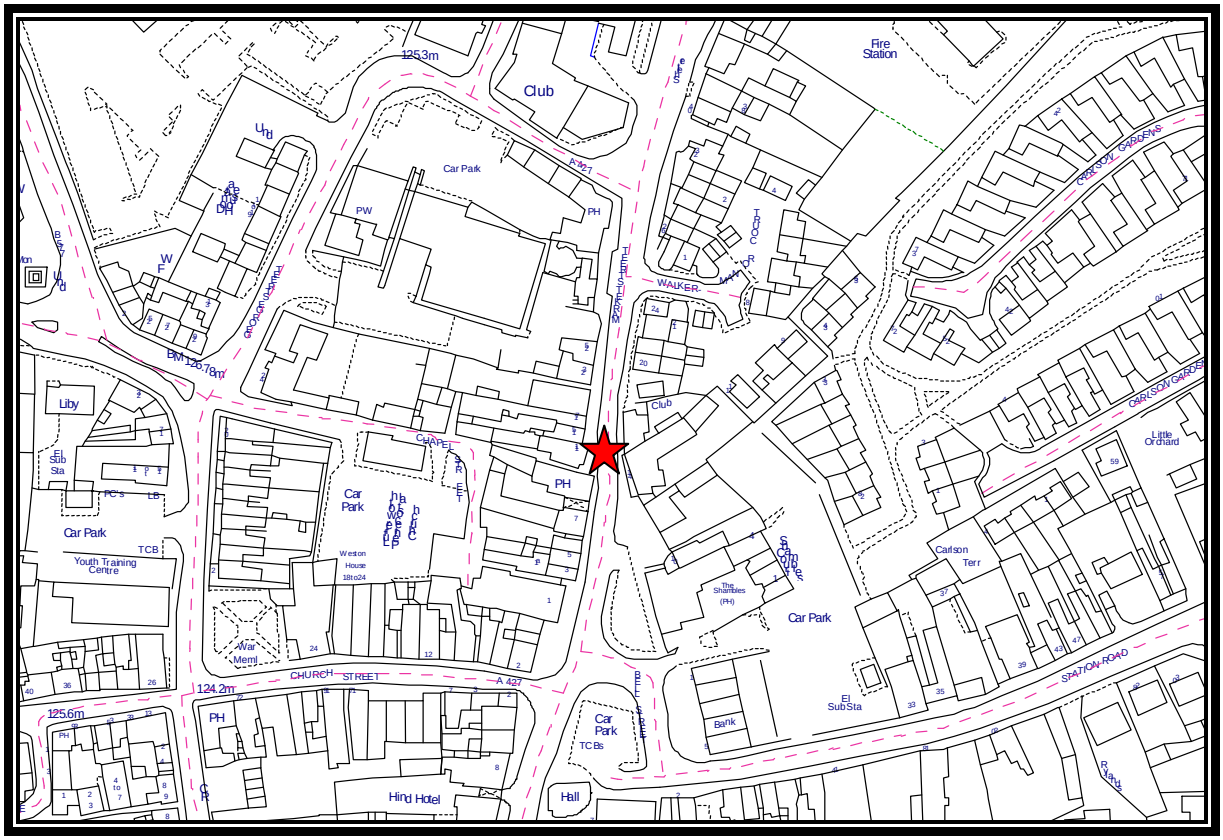
1.5 Summary of Monitoring Undertaken

1.5.1 Automatic Monitoring Sites

There is an automatic monitoring station in Lutterworth, continuously measuring levels of Nitrogen Dioxide and PM_{10}'s. The monitoring station is situated on the main road running through Lutterworth. The station is located within the existing Air Quality Management Area and is on a roadside position approximately 3 metres from the kerbside of a busy road. There is a slight canyon effect from neighbouring buildings. The station has been situated in the same location since 1999; however

ratified data has only been available since 2003. The raw data collected by the monitoring station is validated using consultants, Casella Eti. Details of their quality assurance procedure can be found in appendix A. In addition fortnightly manual calibration checks are carried out on the site.

Fig 3 Location of Automatic Monitoring Station – Market Street Lutterworth



In addition there is a second real time monitoring station situated in a rural location to the east of the district and this forms part of the AURN national monitoring network and monitors for nitrogen dioxide, carbon monoxide and ozone. Details of the site can be found at http://www.bv-aurnsiteinfo.co.uk/viewSite.asp?pageRef=151&stationID=112 .This site is not managed by Harborough District Council.

Table 2.1 Details of Automatic Monitoring Sites

Site Name	Site Type	OS Grid Ref	Pollutants 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 ?
Lutterworth	Roadside	454473 284544	NO_2 and PM_{10}	Yes	Y (10m)	3m	Y
Market Harborough AURN site	Rural	SP833959	NO_2 , CO and Ozone	No	N/A	N/A	N/A

1.5.2 Non-Automatic Monitoring

As part of the assessment of the local air quality, a number of diffusion tubes are located throughout the district. These tubes are a simple and cost effective method for screening air quality and provide a good indication of the annual average levels of Nitrogen Dioxide

The diffusion tubes are analysed by Bureau Veritas. This laboratory has a defined quality system, which forms part of the UKAS accreditation programme. The tubes are prepared by spiking with 10% TEA in water however the laboratory changed to the 20% TEA from January 1st 2009 to coincide with the harmonized method set out by DEFRA. Rounds 100 to 103 which covered the WASP scheme for 2008 were all category 1 (good) results as detailed in Table 2.2.

Table 2.2

BV UK Ltd WASP SCHEME RESULTS SUMMARY 2008

WASP Round	n	Nominal Value µg/tube	BV Average µg/tube	BV Standard Deviation	BV RSD	BV Z-Score	Current Z-score PT performance score	
100A Jan 08	2	1.36	1.185	0	0%	-1	good	CAT 1
100BJan 08	2	1.47	1.283	0.011	0.9%	-0.9	good	CAT 1
101A Apr 08	2	0.92	0.885	0	0%	-0.3	good	CAT 1
101B Apr 08	2	1.86	1.733	0.032	1.8%	-0.5	good	CAT 1
102A Jul 08	2	1.37	1.470	0.043	2.9%	0.6	good	CAT 1
102B Jul 08	2	2.28	2.355	0.043	1.8%	0.4	good	CAT 1
103A Oct 08	2	1.22	1.230	0.0000	0.0%	0.1	good	CAT 1
103B Oct 08	2	0.94	0.960	0.0000	0.0%	0.2	good	CAT 1

As discussed earlier in this report, diffusion tubes are a simple method to obtain information on the local pollution levels. There is a recognised inherent error in using diffusion tubes in that there is a tendency for them to either over or under estimate the actual pollution levels. There are a number of ways in which this error can be adjusted. The current recommended best practice is to use established bias correction factors, which are compiled from several different co-location studies throughout the country. Details of the bias correction factors can be found on http://www.uwe.ac.uk/aqm/review/R&Asupport/diffusiontube050509.xls by taking into consideration Harborough District Council's diffusion tube supplier and preparation methods, the bias correction factor for 2008 is **0.83**.

The Progress Report carried out in 2008 identified the need for additional monitoring beyond the existing Air Quality Management Area in Lutterworth to confirm that the current AQMA boundaries are correct. Consequently part way through the year, 4 tubes were either relocated from other locations in the district or were relocated to a more appropriate monitoring site. Consequently for some diffusion tube sites it was not possible to obtain sufficient data capture at this stage to make an accurate determination as to whether the existing AQMA should be extended and further monitoring will be required.

The sites which were relocated from other locations within the district were

- Tube No 4 relocated from Bushby to Leicester Road in Lutterworth
- Tube No 13 relocated from Harborough Rubber site to Leicester Road Lutterworth
- Tube No 14 relocated from Western Ave Market Harborough to Wistow Road Kibworth

The sites which were repositioned to more suitable monitoring points were

- Tube No 7 Lilac Drive Lutterworth
- Tube No 9 Leicester Road Lutterworth

The results of the diffusion tube monitoring site for 2008 can be found in table 2.3.

Table 2.3 Details of Non- Automatic Monitoring Sites

Site Name	Site Type	OS Grid Ref	Pollutants 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 ?
Example 1	Urban background	X 332395 Y 433175	NO_2	Y	Y (1m)	3m	Y
TUBE 2 Lutterworth Service Shop	Roadside	454475 284560	NO_2	Y	Y 0	4.2	Y
TUBE 3 Brooklands	Urban background	473418 286956	NO_2	N	Y 0	N/A	Y
TUBE 4 Bushby	Roadside	464993 303824	NO_2	N	Y 7.5	2.7	Y
TUBE 1 Lutterworth regent Road	Roadside	454418 284303	NO_2	Y	Y 21	4.3	N
TUBE 5 Lut – monitoring station	Roadside	454476 284541	NO_2	Y	Y 0	2.6	Y
TUBE 6 Theddingworth	Roadside	466586 285571	NO_2	N	N	2	N
TUBE 7 Lutterworth – Lilac Drive	Roadside	453065 284412	NO_2	N	N	0	N
TUBE 8 Lutterworth – Maxwell Way	Roadside	454376 285981	NO_2	N	Y 11.1	1.2	Y
TUBE 9 Lutterworth – Central Park	Roadside	454575 285484	NO_2	N	N	1.3	N
TUBE 10 Lutterworth – Day nursery	Roadside	454539 284932	NO_2	N	Y 10.7	1.3	Y
TUBE 11 A6 Kibworth	Roadside	468425 294314	NO_2	N	Y 9	2.8	Y
TUBE 12 Mkt Harb – Rockingham Rd	Roadside	474731 287585	NO_2	N	Y 11.6	3.7	Y
TUBE 13 Mkt Harb – Harb Rubber	Roadside	474003 287325	NO_2	N	Y 11	1	Y
TUBE 14 Mkt Harb – Western Ave	Roadside	472868 286379	NO_2	N	Y 5.7	1.7	Y
TUBE 15 Walcote	Roadside	456810 283652	NO_2	N	Y 12.5	3	Y
TUBE 16 Mkt Harb – The Square	Roadside	473373 287231	NO_2	N	Y 2.5	3	Y
TUBE 17 Lutterworth – Jazz Hair	Roadside	454443 284348	NO_2	N	Y 0	3	Y
TUBE 14 Wistow Road Kibworth	Roadside	467739 294611	NO_2	N	Y 2.5	5.4	Y
TUBE 4 Lutterworth – 3 Leic Road	Roadside	454527 284805	NO_2	N	Y13.7	1.9	Y
TUBE 13 Lutterworth – 19 Leic Road	Roadside	454551 285430	NO_2	N	Y 13.6	3.3	Y
TUBE 7 Lutterworth – Lilac Dr relocation	Roadside	453099 284498	NO_2	N	Y 7	1.8	Y
TUBE 9 Lutterworth – 77 Leic Road	Roadside	454533 284872	NO_2	N	Y 0	13.5	Y

1.5.3 Nitrogen Dioxide

As previously discussed the automatic monitoring station is situated within the Air Quality Management Area close to the façade of the nearest building to the road Fig 4.

Fig 4 Location of the Air Quality Monitoring Equipment in Lutterworth

Automatic Monitoring Data

Table 2.4a Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with Annual Mean Objective

Site ID	Location	Within AQMA?	Proportion of year with valid data 2008 %	Annual mean concentrations (µg/m^3)		
				2006 *	2007 *	2008
1	Lutterworth	Y	87.6	**55.0**	**50.8**	**50.5**
2	Market Harborough - Rural	N		10.9	11.6	10.8

Table 2.4b Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with 1-hour Mean Objective

Site ID	Location	Within AQMA?	Data Capture 2008 %	Number of Exceedences of hourly mean (200 µg/m^3) *If the period of valid data is less than 90% of a full year, include the 99.8th %ile of hourly means in brackets.*		
				2006 *	2007 *	2008
1	Lutterworth	Y	87.6	6	0	(0)
2	Market Harborough - Rural	N		0	0	0

Diffusion Tube Monitoring Data

Diffusion tube monitoring has been undertaken throughout the district for many years; however in 2005 the network of tubes was extended from 5 tubes to 17. As previously mentioned, during the monitoring period for 2008 it was felt necessary to relocate certain tubes to more relevant monitoring locations or where a tube had constantly recorded levels below the air quality monitoring objectives to use these tubes to collect data beyond the current Air Quality Management Area to determine where the AQMA

Fig 5 shows the location of the diffusion tube network across the district

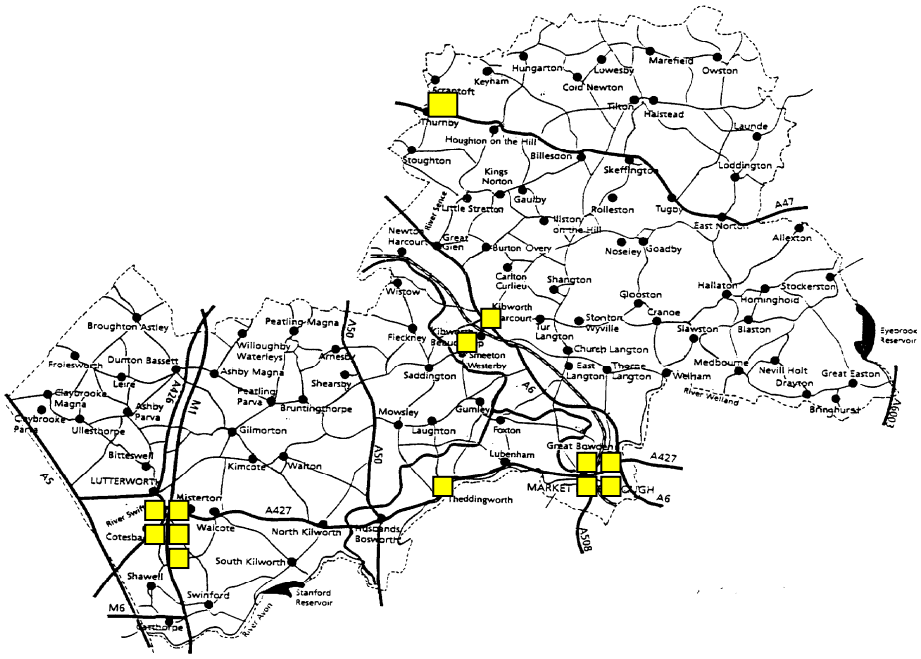


Table 2.5a Results of Nitrogen Dioxide Diffusion Tubes

Site ID	Location	Within AQMA?	Data Capture 2008 %	Annual mean concentrations
				2008 (µg/m^3) Adjusted for bias
2	Lutterworth Service Shop	Y	92	**50.03**
3	Brooklands	N	100	14.94
4	Bushby	N	66	15.77
1	Lutterworth regent Road	N	92	**54.25**
5	Lut – monitoring station	Y	92	**44.3**
6	Theddingworth	N	100	33.55
7	Lutterworth – Lilac Drive	N	66	30.09
8	Lutterworth – Maxwell Way	N	100	27.74
9	Lutterworth – Central Park	N	66	30.71
10	Lutterworth – Day nursery	N	100	**48.62**

11	A6 Kibworth	N	100	37.97
12	Mkt Harb – Rockingham Rd	N	92	35.69
13	Mkt Harb – Harb Rubber	N	33	28.01
14	Mkt Harb – Western Ave	N	33	21.99
15	Walcote	N	92	28.07
16	Mkt Harb – The Square	N	75	30.34
17	Lutterworth – Jazz Hair	N	100	**48.90**
14	Wistow Road Kibworth	N	66	26.04
4a	Lutterworth – 3 Leic Road	N	33	**43.57**
13a	Lutterworth – 19 Leic Road	N	33	**44.82**
7a	Lutterworth – Lilac Dr relocation	N	33	33.82
9a	Lutterworth – 77 Leic Road	N	33	33.2

NB results in bold signify an exceedence of the National Air Quality Objective level.

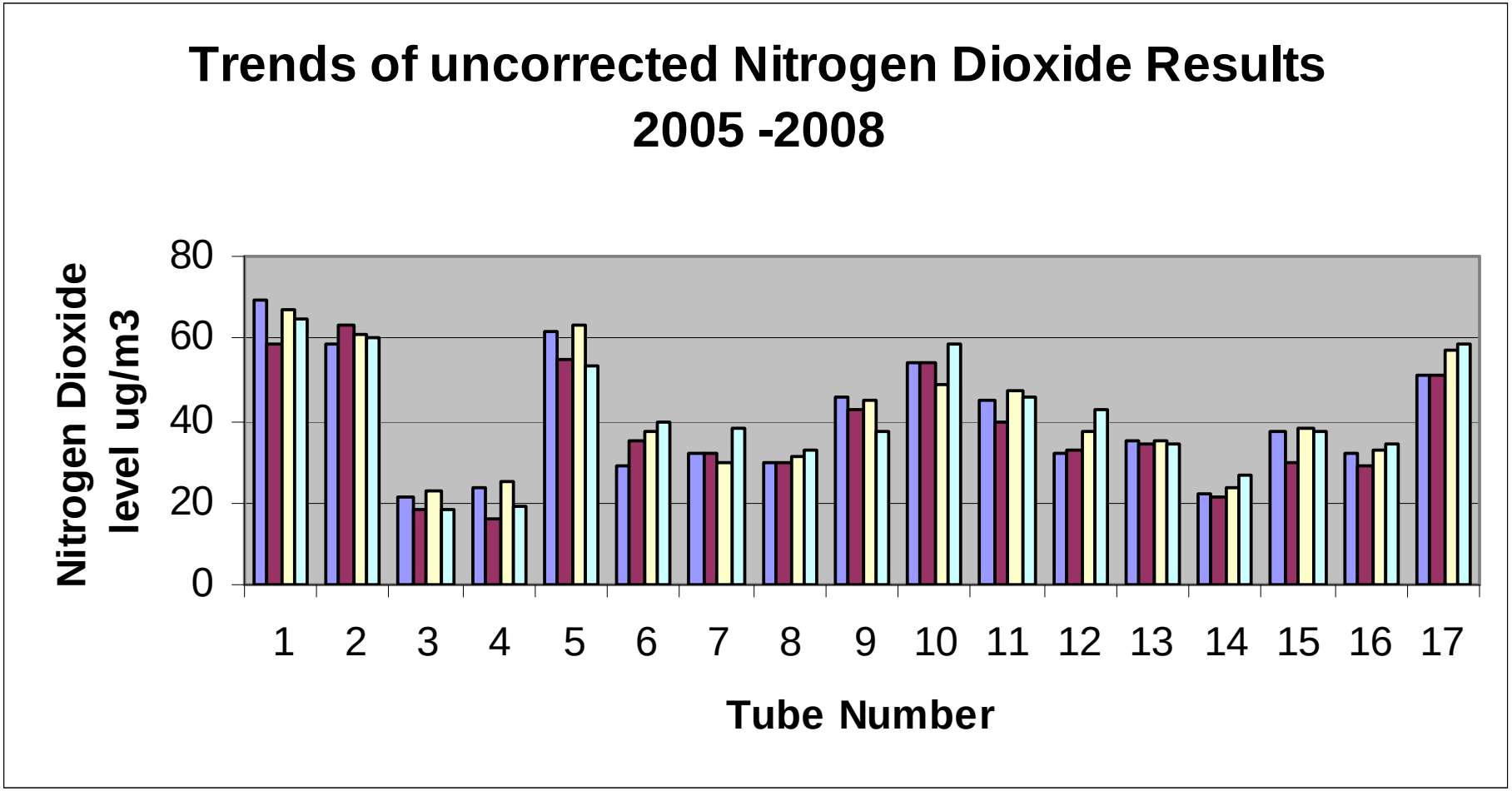
Table 2.5b Comparison of the Results of Nitrogen Dioxide Diffusion Tubes for the Years 2006-2008

Site ID	Location	Within AQMA?	Annual mean concentrations (µg/m^3) Adjusted for bias		
			2006 *	2007 *	2008
2	Lutterworth Service Shop	Y	**55.1**	**54.9**	**50.03**
3	Brooklands	N	15.9	20.7	14.94
4	Bushby	N	13.6	22.5	15.77
1	Lutterworth regent Road	N	**51.7**	**60.3**	**54.25**
5	Lut – monitoring station	Y	**47.5**	**56.7**	**44.3**
6	Theddingworth	N	31.1	33.3	33.55
7	Lutterworth – Lilac Drive	N	27.9	27	30.09
8	Lutterworth – Maxwell Way	N	26.3	27.9	27.74
9	Lutterworth – Central Park	N	37.7	**40.5**	30.71
10	Lutterworth – Day nursery	N	**47.6**	**44.1**	**48.62**
11	A6 Kibworth	N	35.1	**42.3**	37.97
12	Mkt Harb – Rockingham Rd	N	29	33.3	35.69
13	Mkt Harb – Harb Rubber	N	29.2	31.5	28.01
14	Mkt Harb – Western Ave	N	18	21.6	21.99
15	Walcote	N	24.9	29.7	28.07
16	Mkt Harb – The Square	N	26.2	34.2	30.34
17	Lutterworth – Jazz Hair	N	**44.5**	**51.3**	**48.90**
14	Wistow Road Kibworth	N	N/A	N/A	26.04
4a	Lutterworth – 3 Leic Road	N	N/A	N/A	**43.57**
13a	Lutterworth – 19 Leic Road	N	N/A	N/A	**44.82**
7a	Lutterworth – Lilac Dr relocation	N	N/A	N/A	33.82
9a	Lutterworth – 77 Leic Road	N	N/A	N/A	33.2

Table 2.6 shows the trend for the diffusion tube results since 2005.

Harborough District Council - England

Table 2.6



In conclusion for Nitrogen Dioxide, generally across the district the levels of nitrogen dioxide do not exceed the National Air Quality Objectives, however 7 tubes in Lutterworth and the automatic monitoring station in Lutterworth show levels potentially exceeding the national objective for the annual mean concentration of 40 µg/m^3. Some of these areas are outside the boundary of the existing AQMA, however there is insufficient data capture in some of these areas to make an accurate determination and further monitoring will be undertaken throughout 2009. The results did not indicate that there was an exceedence of the 1-hour mean objective level.

1.5.4 PM_{10}

The real time results for PM10 have been adjusted in accordance with the guidance in Box 3.4 of the Technical Guidance TG(09) using the Volatile Correction Model and a correction factor of 1.3 has been applied to the results

Table 2.5a Results of PM_{10} Automatic Monitoring: Comparison with Annual Mean Objective

Site ID	Location	Within AQMA?	Data Capture 2008 %	Annual mean concentrations (µg/m^3)		
				2006 *	2007 *	2008
1	Lutterworth	Y	66.9	24.2	23.6	(23.83)

Table 2.5b Results of PM_{10} Automatic Monitoring: Comparison with 24-hour Mean Objective

Site ID	Location	Within AQMA?	Data Capture 2008 %	Number of Exceedences of daily mean objective (50 µg/m^3) *If data capture < 90%, include the 90th %ile of daily means in brackets.*		
				2006 *	2007 *	2008
1	Lutterworth	Y	66.9	7	4	(2)

Appendix B shows the results of PM_{10} Automatic Monitoring for 2008-09.

To conclude for PM10 whilst it is appreciated that the data capture for 2008 was below the recommended levels, the results did not indicate that there would be an exceedence of the National Air Quality Objectives and they were in line with the results obtained for previous years.

1.5.5 Sulphur Dioxide

This Authority is currently not monitoring for Sulphur Dioxide.

1.5.6 Benzene

This Authority is currently not monitoring for Benzene.

1.5.7 Other pollutants monitored

The rural AURN national monitoring site monitors for Carbon Monoxide and Ozone. Table XX shows the results for these pollutants from this monitoring station for 2008

Pollutant	Objective		Results for 2008 Rural Monitoring Station
	Concentration	Measured As	
Carbon Monoxide	10.0mg/m^3	Max daily running 8 hr mean	Nil exceedences measured
Ozone	100µg/m^3 not to be exceeded more than 10 times a year	Daily maximum of a running 8hr mean	**Over 10 exceedences**

Ozone is not one of the pollutants covered by the Local Air Quality Management process. It is recognised that due to the fact that much of the problem from Ozone stems from sources outside of the UK, there is little that the district councils could do to improve the local situation. The problem of Ozone is being addressed on an international scale.

Harborough District Council has measured concentrations of Nitrogen Dioxide above the annual mean at relevant locations outside of the AQMA , and **will need to proceed to a Detailed Assessment**, to determine the full extend of how much the existing AQMA will need to be increased.

2 Road Traffic Sources

2.1 Narrow Congested Streets with Residential Properties Close to the Kerb

Harborough District Council confirms that there are no new/newly identified congested streets with a flow above 5,000 vehicles per day and residential properties close to the kerb, that have not been adequately considered in previous rounds of Review and Assessment.

2.2 Busy Streets Where People May Spend 1-hour or More Close to Traffic

Harborough District Council confirms that there are no new/newly identified busy streets where people may spend 1 hour or more close to traffic.

2.3 Roads with a High Flow of Buses and/or HGVs.

Harborough District Council confirms that there are no new/newly identified roads with high flows of buses/HDVs.

2.4 Junctions

Harborough District Council confirms that there are no new/newly identified busy junctions/busy roads.

2.5 New Roads Constructed or Proposed Since the Last Round of Review and Assessment

In February 2009 the Highways Agency announced the preferred route for the M1 Junction 19 Improvement scheme which comprises of improvements to the main M1/M6/A14 junction and alterations to the local road networks.

This announcement follows many years of assessments of various routes by the Highways Agency based on congestion and safety considerations. As part of the initial assessments of potential options for the proposed improved scheme diffusion tubes were exposed between July 2003 and December 2004 at nine locations in the local vicinity. When corrected for bias, all diffusion measurements would meet the annual mean air quality objective level for nitrogen dioxide by 2005. However as part of the scoping report for the preferred route further assessments of the local air quality is due to be undertaken by the Highways Agency. This assessment will involve detailed dispersion modelling using

the model ADMS – Roads and will determine the baseline scenario for 2007, the assessment of air quality in the opening year if the "Do Minimum" scenario is implemented and finally and assessment of the completed scheme. The assessment will also include the construction phase of the project. The Environmental Impact Assessment is due for completion in November 2009 and based on the information provided to date there is no indication that on completion of the proposed scheme there will be any exceedence of the national air quality objective, however Harborough District Council will be consulted on the findings of the assessment.

Harborough District Council has assessed new/newly identified junctions meeting the criteria in Section A.5 of Box 5.3 in TG(09), and concluded that it will not be necessary to proceed to a Detailed Assessment.

2.6 Roads with Significantly Changed Traffic Flows

Harborough District Council confirms that there are no new/newly identified roads with significantly changed traffic flows.

2.7 Bus and Coach Stations

Harborough District Council confirms that there are no relevant bus stations in the Local Authority area.

3 Other Transport Sources

3.1 Airports

Harborough District Council confirms that there are no airports in the Local Authority area.

3.2 Railways (Diesel and Steam Trains)

3.2.1 Stationary Trains

Harborough District Council confirms that there are no locations where diesel or steam trains are regularly stationary for periods of 15 minutes or more, with potential for relevant exposure within 15m.

3.2.2 Moving Trains

Harborough District Council confirms that there are no locations with a large number of movements of diesel locomotives, and potential long-term relevant exposure within 30m.

3.3 Ports (Shipping)

Harborough District Council confirms that there are no ports or shipping that meets the specified criteria within the Local Authority area.

4 Industrial Sources

4.1 Industrial Installations

4.1.1 New or Proposed Installations for which an Air Quality Assessment has been carried out

Harborough District Council confirms that there are no new or proposed industrial installations for which planning approval has been granted within its area or nearby in a neighbouring authority.

4.1.2 Existing Installations where Emissions have increased substantially or New Relevant Exposure has been introduced

Harborough District Council confirms that there are no industrial installations with substantially increased emissions or new relevant exposure in their vicinity within its area or nearby in a neighbouring authority.

4.1.3 New or Significantly Changed Installations with No Previous Air Quality Assessment

Harborough District Council confirms that there are no new or proposed industrial installations for which planning approval has been granted within its area or nearby in a neighbouring authority.

4.2 Major Fuel (Petrol) Storage Depots

There are no major fuel (petrol) storage depots within the Local Authority area.

4.3 Petrol Stations

Harborough District Council confirms that there are no petrol stations meeting the specified criteria**.**

4.4 Poultry Farms

There is one poultry farm in the district permitted by the Environment Agency under the Pollution Prevention and Control (England & Wales) regulations 2000 as amended. This farm houses laying hens and pullets and the total number of places for birds on this site in less than 100,000 which falls below the levels of birds requiring further investigation as described in the technical Guidance TG(09).

Harborough District Council confirms that there are no poultry farms meeting the specified criteria.

5 Commercial and Domestic Sources

5.1 Biomass Combustion – Individual Installations

Harborough District Council confirms that there are no biomass combustion plant in the Local Authority area.

5.2 Domestic Solid-Fuel Burning

The district was divided into 500x500 m squares to identify the highest density of housing across the district - Appendix C There are several villages in the district where there is no mains gas and where there is the potential for solid fuel to be used. The highest density of dwellings in the areas where there is no mains gas within a 500x500 m square is 217 properties. The background PM10 levels across the whole of the district varies between 15.8µg/m^3 and 19.7µg/m^3 and based on the guidance for assessing emission from biomass burning, the minimum number of households burning this type of materials as their principal source of fuel would have to be between 290 and 380 properties for there to be any possibility of an exceedence of the national objectives. Consequently it is felt that further investigation is not required.

Harborough District Council has assessed areas of significant domestic solid fuel use, and concluded that it will not be necessary to proceed to a Detailed Assessment.

6 Fugitive or Uncontrolled Sources

An application for a composting unit has been submitted to the Environment Agency for a permit under the Environmental Permitting regime. The unit will be fully enclosed and there are no relevant exposure sources therefore it is anticipated that no further assessments are required for this site.

The Environment Agency issued a permit for a landfill site for inert waste in 2006 and this was varied in 2008. The permit included the condition that there should be no point source of emissions to air. The closest receptor is approximately 80m from the site boundary, 120m from the haul road on the site, approximately 250m away from the site plant and approximately 285m from the stocking area. The background PM10 concentration for this area is 17.1µg/m^3 and no complaints have been received regarding dust from this site and therefore it is anticipated that no further assessment will be required for this site.

In 2006 an application was submitted to the Environment Agency for a permit for an inert landfill site. The permit was issued in 2007 which included conditions stipulating that there should ne no point source emissions on site and part of the improvement plan included the development of a particulate monitoring action plan. The nearest sensitive receptor to the site is over 250m away and consequently it is not anticipated that further assessments will be required at this stage.

Harborough District Council confirms that there are no potential sources of fugitive particulate matter emissions in the Local Authority area.

7 Conclusions and Proposed Actions

7.1 Conclusions from New Monitoring Data

To conclude for the monitoring data collated through out 2008-09, the majority of the data confirms that the air quality throughout the district is generally good. However the levels of nitrogen dioxide in Lutterworth remain above the national air quality objective levels. Early indications show that the current air quality management area may need to be extended however in some of the area there is insufficient data from the diffusion tubes to make a final judgement. Whilst Harborough District Council is confident that the AQMA needs to be extended along the High Street towards Rugby Road, further work is required to determine the extent the AQMA needs to be increases northwards along Leicester Road. Consequently a Detailed Assessment will be undertaken in 2009/10 to determine the full extent of the revised AQMA.

7.2 Conclusions from Assessment of Sources

The Update and Screening Assessment looked at local developments, road transport; industrial installations; burning of bio fuels in both the commercial and residential sectors and the potential for fugitive emissions from various sources. Following this assessment it was concluded that there was evidence to suggest that the national air quality objectives levels would be breached and there was no requirement to undertake a more detailed assessment.

7.3 Proposed Actions

The Update and Screening Assessment has identified the need to undertake a Detailed Assessment for nitrogen dioxide in Lutterworth to determine the extent to which the current Air Quality Management Area needs to be extended. The Detailed Assessment will be submitted in 2010.

8 References

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

Appendix A: QA:QC Data

Diffusion Tube Bias Adjustment Factors

The diffusion tubes are analysed by Bureau Veritas. This laboratory has a defined quality system, which forms part of the UKAS accreditation programme. The tubes are prepared by spiking with 10% TEA in water however the laboratory changed to the 20% TEA from January 1st 2009 to coincide with the harmonized method set out by DEFRA.

Table A1 shows the assessment used to determine the bias correction factor for the 2008 Update and Screening Assessment.

PM Monitoring Adjustment

King's College ERG have developed a new model to correct TEOM concentrations to "gravimetric equivalent" values, based on the purge concentrations measured by FDMS analysers. To assist local authorities with the Volatile Correction Model, ERG has developed a web portal that will allow the correction algorithms to be automatically applied.

The 24 hour average data from the automatic analyser was inputted into the model and the correction factor was automatically applied.

QA/QC of automatic monitoring

There is a service agreement in place with Casella ETI Data Services for the real time monitor. Where it appears that the analyser is not working correctly, an engineer visits the monitor at the earliest opportunity to minimise data loss. In addition an engineer from Casella services the system every six months and a full calibration of the system is undertaken along with preventative maintenance checks.

Data from the analyser is stored on the logger as “raw” or “uncorrected” data, therefore data needs to be corrected or “validated”. To validate the data, the analyser needs to be checked against a reference standard of “zero” air and “span” gas. The analyser performs an automatic calibration process to check the instrument performance by introducing a high concentration of NO gas. The daily calibration check, produces an actual zero response and a span response value, which is stored in a calibration, file on the logger. The site is visited fortnightly and a manual calibration is undertaken and the filters are changed in accordance with the manufacturer’s specification.

QA/QC of diffusion tube monitoring

The Bureau Veritas Laboratory was covered in the WASP scheme for 2008. All the assessments were category 1 (good) results as detailed in Table A1.

Table A2

BV UK Ltd WASP SCHEME RESULTS SUMMARY 2008

WASP Round	n	Nominal Value µg/tube	BV Average µg/tube	BV Standard Deviation	BV RSD	BV Z-Score	Current Z-score PT performance score	
100A Jan 08	2	1.36	1.185	0	0%	-1	good	CAT 1
100BJan 08	2	1.47	1.283	0.011	0.9%	-0.9	good	CAT 1
101A Apr 08	2	0.92	0.885	0	0%	-0.3	good	CAT 1
101B Apr 08	2	1.86	1.733	0.032	1.8%	-0.5	good	CAT 1
102A Jul 08	2	1.37	1.470	0.043	2.9%	0.6	good	CAT 1
102B Jul 08	2	2.28	2.355	0.043	1.8%	0.4	good	CAT 1
103A Oct 08	2	1.22	1.230	0.0000	0.0%	0.1	good	CAT 1
103B Oct 08	2	0.94	0.960	0.0000	0.0%	0.2	good	CAT 1

Council Name –Harborough District Council

Table A1 - Assessment used to determine the bias correction factor for the 2008 Update and Screening Assessment.

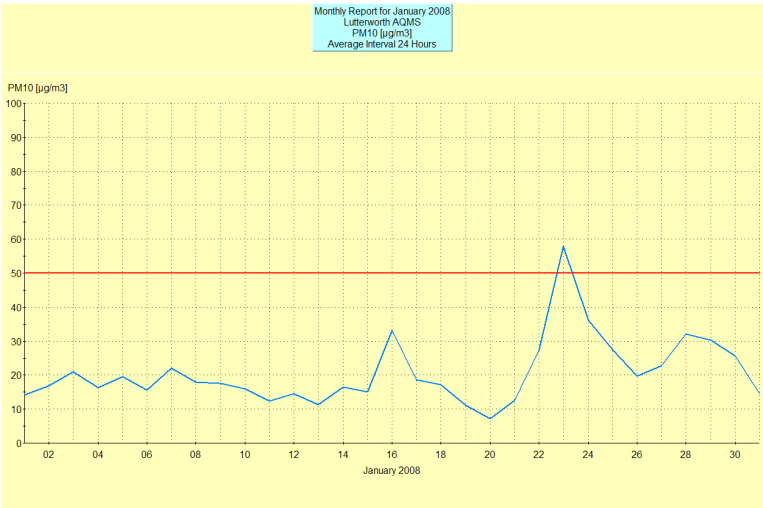
Laboratory details	Method	Year	Site type	Local Authority	Length of study (months)	Tube mean conc. (µg/m^3)	Automatic monitor mean conc. (µg/m^3)	Bias	Tube Precision	Bias Adjustment Factor
Bureau Veritas Labs	10% TEA in water	2008	R	Castlereagh BC	10	35	23	53.9%	P	0.65
Bureau Veritas Labs	10% TEA in water	2008	R	Castlereagh BC	10	43	31	39.1%	G	0.72
Bureau Veritas Labs	10% TEA in water	2008	R	Dumfries & Galloway Council	11	40	38	6.5%	G	0.94
Bureau Veritas Labs	10% TEA in water	2008	R	Lisburn CC	12	33	26	29.3%	P	0.77
Bureau Veritas Labs	10% TEA in water	2008	R	North Down BC	10	46	33	41.9%	G	0.70
Bureau Veritas Labs	10% TEA in water	2008	R	Wrexham CBC	12	22	21	6.4%	G	0.94
Bureau Veritas Labs	10% TEA in water	2008	S	Chichester DC	12	40	34	15.3%	G	0.87
Bureau Veritas Labs	10% TEA in water	2008	UB	Stockport MBC	10	40	28	43.1%	G	0.70
Bureau Veritas Labs	10% TEA in water	2008	K	AEA Tech Intercomparison	11	137	117	16.7%	G	0.86
Bureau Veritas Labs	10% TEA in water	2008	B	Wigan MBC	12	28	26	6.8%	G	0.94
Bureau Veritas Labs	10% TEA in water	2008	R	LB Croydon	12	67	68	-1.5%	G	1.02
Bureau Veritas Labs	10% TEA in water	2008	R	LB Croydon	12	50	49	0.3%	P	1.00
Bureau Veritas Labs	10% TEA in water	2008	B	Derby CC	12	38	34	11.3%	G	0.90
Bureau Veritas Labs	10% TEA in water	2008	R	Derby CC	12	54	41	32.8%	P	0.75
Bureau Veritas Labs	10% TEA in water	2008	R	Derby CC	12	54	46	17.3%	G	0.85
Bureau Veritas Labs	**10% TEA in water**	**2008**		**Overall Factor**				**Use**		**0.83**

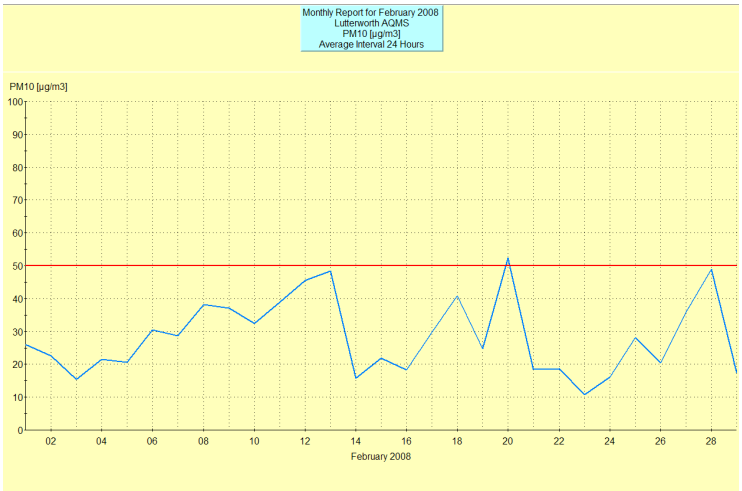
Appendix B: PM10 results

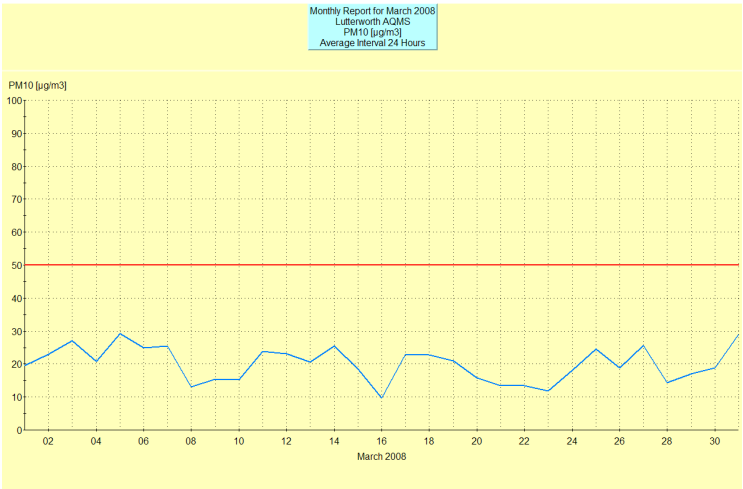
Monthly plots for Particles (PM10)

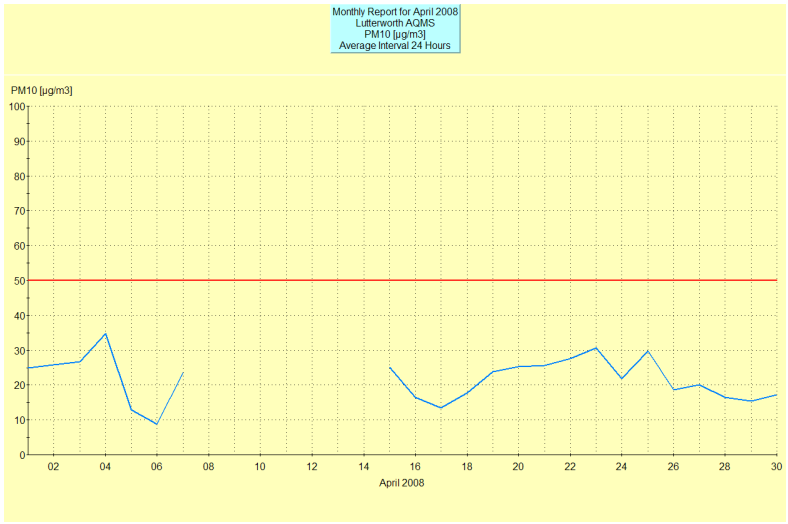
• The objective for PM10 is 50 µg/m3 when expressed as a 24-Hour mean, not to be exceeded more than thirty five times per year.

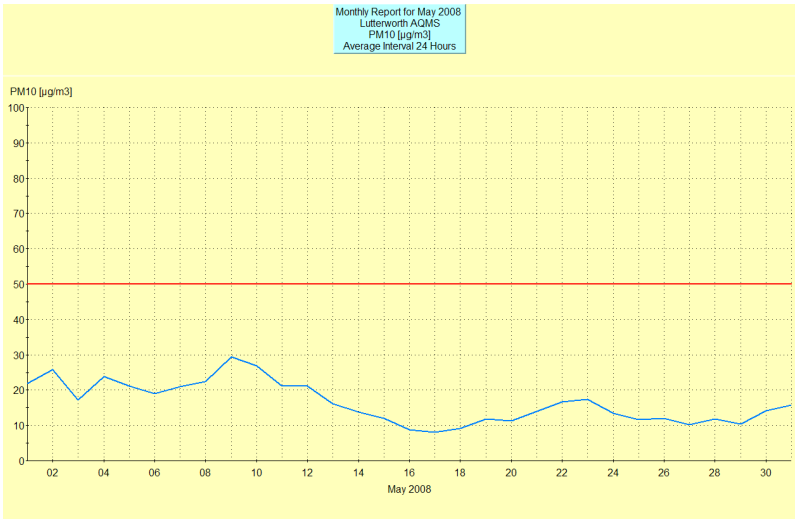
• Monthly plots of comparative 24 hour PM10 average values (µg/m3), objective expressed by the red limit line.

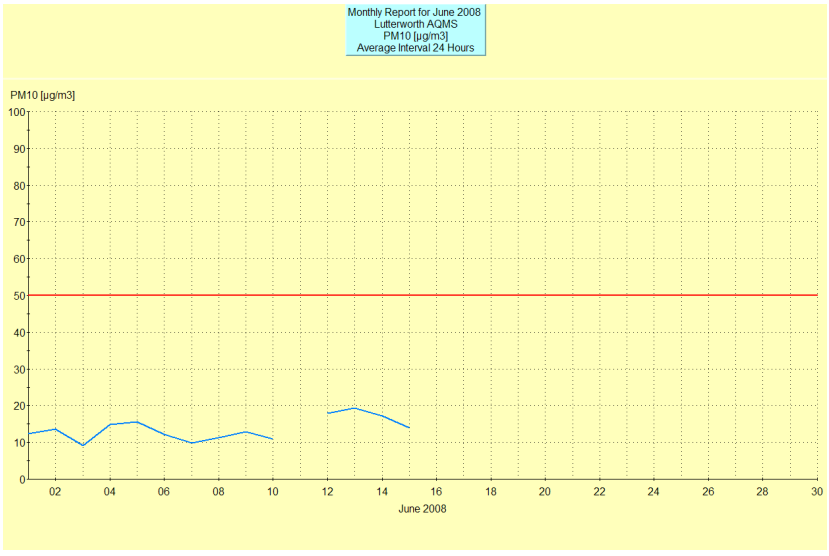


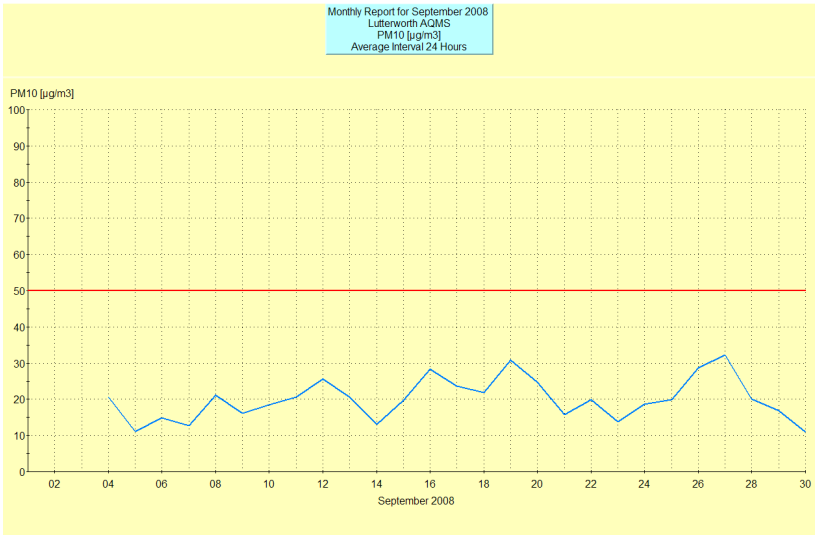


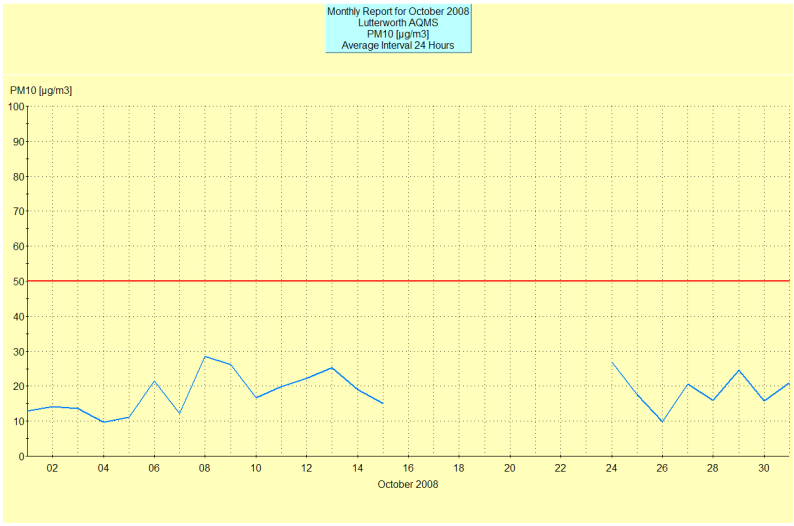


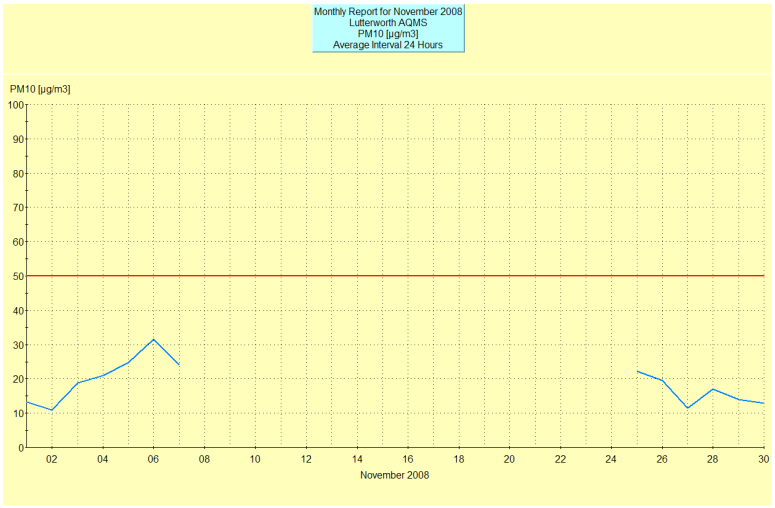

Monthly Report for April 2008
Lutterworth AQMS
PM10 [µg/m3]
Average Interval 24 Hours
PM10 [µg/m3]
100
90
80
70
60
50
40
30
20
10
0
02
04
06
08
10
12
14
16
18
20
22
24
26
28
30
April 2008


Monthly Report for May 2008
Lutterworth AQMS
PM10 [µg/m3]
Average Interval 24 Hours
PM10 [µg/m3]
100
90
80
70
60
50
40
30
20
10
0
02
04
06
08
10
12
14
16
18
20
22
24
26
28
30
May 2008


Monthly Report for June 2008
Lutterworth AQMS
PM10 [µg/m3]
Average Interval 24 Hours
PM10 [µg/m3]
100
90
80
70
60
50
40
30
20
10
0
02
04
06
08
10
12
14
16
18
20
22
24
26
28
30
June 2008


Monthly Report for September 2008
Lutterworth AQMS
PM10 [µg/m3]
Average Interval 24 Hours
PM10 [µg/m3]
100
90
80
70
60
50
40
30
20
10
0
02
04
06
08
10
12
14
16
18
20
22
24
26
28
30
September 2008


Monthly Report for October 2008
Lutterworth AQMS
PM10 [µg/m3]
Average Interval 24 Hours
PM10 [µg/m3]
100
90
80
70
60
50
40
30
20
10
0
02
04
06
08
10
12
14
16
18
20
22
24
26
28
30
October 2008


Monthly Report for November 2008
Lutterworth AQMS
PM10 [µg/m3]
Average Interval 24 Hours
PM10 [µg/m3]
100
90
80
70
60
50
40
30
20
10
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02
04
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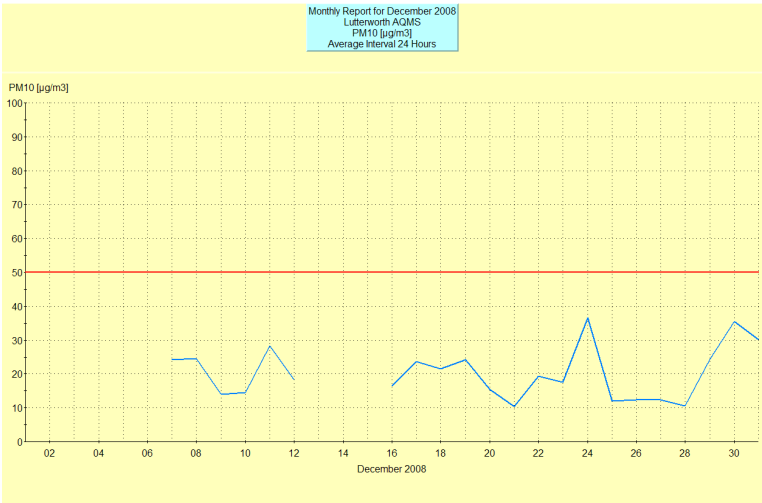
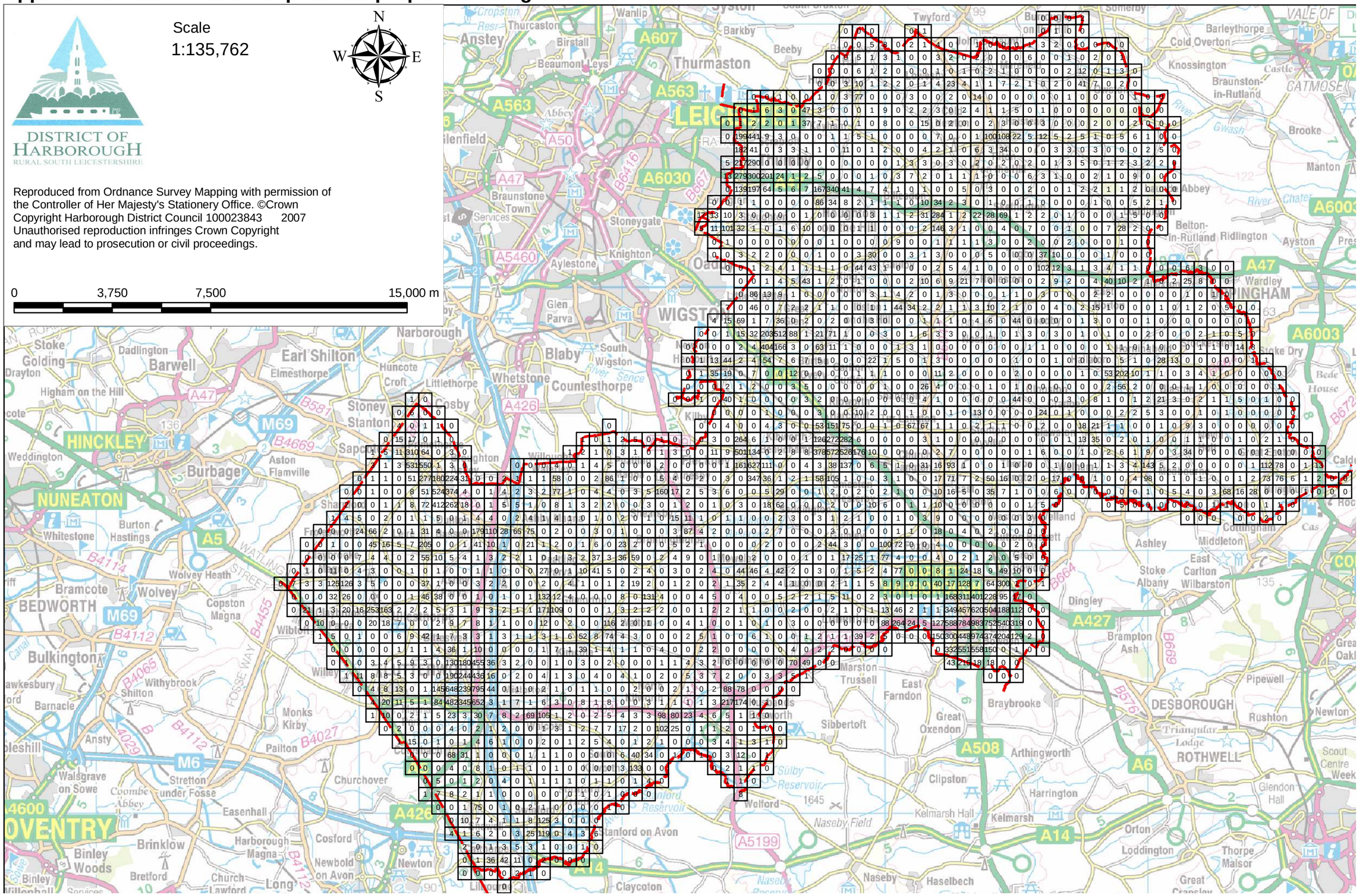
30
November 2008



Please note the TEOM was off from 19/06/08 – 03/09/08 for repairs

Appendix C Determination of potential properties using biomass fuels



Date June 2009 Updating and Screening Assessment

Council Name –Harborough District Council