Part IV of the Environment Act 1995
Local Air Quality Management

The 2008 Progress Report

April 2008

Air Quality within the Kennet District – The 2008 Progress Report

Executive Summary

This Progress Report of the air quality within the Kennet district has been compiled as a consequence of the Air Quality (Amendment) Regulations 2002.

The report continues the revised phased approach to the assessment of local air quality with emphasis that local authorities should only undertake a level of assessment commensurate with the local risk of air quality objectives being exceeded.

It follows on from the first stage of the revised process, the Updating and Screening Assessments published in May 2003 and April 2006 and Progress Reports submitted in April 2004, 2006 and 2007.

This in turn continued the previous work carried out concerning the air quality within the Kennet district, which had concluded with a stage two review and assessment of the air quality completed in 2000.

This progress report has been compiled in line with the Technical Guidance document LAQM.PRG(03) and concentrates on reporting new monitoring data compiled since the previous reporting stage and information concerning local development likely to have an impact upon air quality.

The progress report submitted in 2007 identified a potential exceedence of the Air Quality Objectives for NOx and a detailed assessment was commenced at the site in question. This is still to be completed and will be submitted later in the year.

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CHAPTER 1: Introduction

1.1 The need for a review of air quality

1.1.1 As a consequence of the Environment Act 1995 and subsequent regulations, local authorities are required to review and assess the air quality in their area. These laws form the cornerstone of local air quality management (LAQM), which in turn forms a key part of the UK government strategy to achieve the UK Air Quality Objectives.

1.2 The phased approach to review and assessment

1.2.1 The principal underlying the local air quality management process is one that local authorities should only undertake a level of assessment that is commensurate with the risk of an air quality objective being exceeded locally.

1.2.2 With the ongoing research into air quality and the causes of pollution, combined with increasingly more accurate monitoring equipment and modelling procedures, several air quality standards have been refined and are included into the next phase of the United Kingdom's local air quality management procedure.

1.2.3 Most recently, the review process took the form of a progress report submitted in April 2007. This identified a potential exceedence at a site in Devizes; Shanes Castle, and concluded that a detailed assessment at the site was required. This commenced in September 2007 and is discussed in more detail in chapter 2.

1.2.4 A further submission of an Updating and Screening Assessment of Air Quality must also be made during the first four months of 2009, with a 'Detailed Assessment' (if required) or 'Progress Report' due by the end of 2010.

1.3 The Kennet district

1.3.1 Kennet is one of four District Councils in the County of Wiltshire. It covers approximately 375 square miles and is home to about 76,000 people. The main settlements are the historic towns of Devizes and Marlborough. Pewsey, Ludgershall and Tidworth provide further centres of population, although half the area's population lives in the extensive network of scattered villages.

1.3.2 The district is mainly rural and agricultural in character. About two thirds of the district is included within the North Wessex Downs Area of Outstanding Natural Beauty and a further 20 per cent is designated a Special Landscape Area. The major physical features are the extensive chalk downlands of the Marlborough Downs, to the North, and Salisbury Plain to the South. The Vale of Pewsey, which runs from west to east, roughly midway through the district, separates these upland areas. The main railway service and the Kennet and Avon Canal also follow this route. The River Kennet and the Salisbury Avon have cut other significant valleys into the chalk. To the west of the District, the chalk uplands give way to the clay vale in the western part of the County.

1.3.3 Employment and economic activity is scattered. Historically it has centred on agriculture and Ministry of Defence Establishments. Structural changes have come from reduced opportunities in agriculture and changes in military presence following defence reviews. Unemployment is below average, but many people commute to jobs outside the district.

1.3.4 Significant change to the structure of the local government serving the residents of Kennet District Council is to take place in April 2009 with the formation of the Unitary Wiltshire Council. The impact upon the structure of Air Quality Management in the County is significant and the matter is discussed further in Chapter 5 of this report.

CHAPTER 2: Air quality monitoring results

2.1 Nitrogen dioxide monitoring

2.1.1 Since 1994 Kennet District Council has maintained a full program of diffusion tube based monitoring for nitrogen dioxide from locations sensitive to traffic levels across the district.

2.1.2 The locations of the sites has varied over time but a significant change was made during 2007 with the relocation of a number of tubes in September to the area around Shanes Castle in Devizes as part of a detailed assessment of the air quality at the site. This followed the identification of a potential exceedence of the air quality objective for NOx (annual mean) at this location.

2.1.3 Maps are included in Appendix 1 to this report showing the locations of the monitoring sites currently employed. Map 1 sets out the sites in the Devizes area, Map 2 the Marlborough area and Map 3 highlights locations in the rest of the district.

2.1.4 A summary of the type and location of the monitoring sites employed by Kennet District Council is set out below, note that it includes all the sites employed during 2007, a total of 33. This includes the 7 sites introduced during the year as part of the detailed assessment at Shanes Castle and a site introduced in Upper Herd Street, Marlborough following a complaint about traffic levels.

2.1.5 A sort description of each site is offered although reference has been made where some of the sites have been described in previous reports (the 2006 Update and Screening Assessment or the 2007 Progress Report). A more complete description of all the new sites employed for the detailed assessment will be included in the reporting of this project, to be submitted later in the year.

Table 2.1 – Kennet District Council NO_2 monitoring tube sites

Location	Site Type	Brief Description of site
Devizes Avon rd	Urban B'ground	Retired in Sep, described in 2006 USA
Devizes Castle	Urban Centre	Retired in Sep, described in 2006 USA
Easterton	Urban B'ground	Retired in April, described in 2006 USA
Erlestoke	Urban B'ground	Described in 2006 USA
Potterne School	Roadside	Described in 2006 USA
Pewsey	Urban Centre	Described in 2006 USA
Devizes Police	Roadside	Described in 2006 USA
Devizes Windsor Dr.	Roadside	Described in 2006 USA
Devizes Brickley Ch.	Urban B'ground	Described in 2006 USA
Devizes Wansdyke Sch	Suburban	Described in 2006 USA
Devizes London Rd.	Roadside	Described in 2006 USA
Devizes Market St	Urban Centre	Described in 2006 USA
Marl. Herd St	Kerbside	Described in 2006 USA
Devizes Wadworths	Kerbside	Described in 2006 USA
Ludgershall Castle	Urban B'ground	Retired in July, described in 2006 USA
Seend – Bell	Urban B'ground	Retired in Sep, described in 2007 PR
Avebury School	Urban B'ground	Described in 2006 USA
Devizes Shanes Castle	Kerbside	Described in 2006 USA
Devizes Roses	Roadside	Described in 2006 USA
Marlborough High St	Roadside	Described in 2006 USA
Marlborough St Peters	Roadside	Described in 2006 USA
Marlbo. Leisure Cen.	Urban B'ground	Retired in Sep, described in 2006 USA
Devizes Hillworth Rd	Roadside	Retired in Sep, described in 2006 USA
Urchfont	Urban B'ground	Retired in April, described in 2006 USA
Aerocan	Urban B'ground	Described in 2007 PR
Hillsborough	Kerbside	Introduced in Sept as part of detailed assessment
Avalon	Kerbside	Introduced in Sept as part of detailed assessment
St Peters School	Roadside	Introduced in April, school opposite Shanes Castle
Upper Herd Street	Kerbside	Introduced in July following a complaint
Shanes Castle 2	Roadside	Introduced in Sept as part of detailed assessment
Shanes Castle Roof	Roadside	Introduced in Sept as part of detailed assessment
Shanes Castle Inside	Inside*	Introduced in Sept as part of detailed assessment
Trafalgar Place	Roadside	Introduced in April, vicinity of Shanes Castle

* - A non-traditional location at the request of the residents of Shanes Castle

2.1.6 Table 2.2 below sets out the monitoring data collected for the 33 sites used for the main nitrogen dioxide survey employed as within the Kennet district.

2.1.7 The data presented in table 2.2 has been adjusted for laboratory bias in accordance with the procedures set out in the spreadsheet made available on the University of West of England Air Quality website;
http://www.uwe.ac.uk/aqm/review/diffusiontube300308.xls

2.1.8 The nitrogen dioxide tubes used for the main survey are analysed by Lambeth Scientific Services using a 50% TEA in acetone method. The correction factor obtained for 2007 was 0.99. .

2.1.9 The data presented in table 2.2 can be compared against the UK air quality objectives for nitrogen dioxide by projecting the measured roadside concentrations forward to 2010 using the correction factors and methodology set out in Box 6.6 of the guidance document LAQM.TG(03). The correction factor has been calculated at **0.802** and the projected 2010 levels are also summarised in table 2.2 and discussed in section 2.2 of this report.

Table 2.2 – Summary of 2007 nitrogen dioxide monitoring results

Kennet District Council				
Summary of 2007 nitrogen dioxide Survey				
Site	**Site Type**	**2007 mean**	**2007 adjusted**	**2010 projected**
Devizes Avon rd[1]	Urban B'ground	8.00	7.92	6.34
Devizes Castle[1]	Urban Centre	7.57	7.49	5.99
Easterton[2]	Urban B'ground	5.5	5.445	4.35
Erlestoke	Urban B'ground	10.36	10.26	8.23
Potterne School	Roadside	15.64	15.48	12.41
Pewsey	Urban Centre	13.45	13.32	10.68
Devizes Police	Roadside	22.45	22.23	17.83
Devizes Windsor Dr.	Roadside	17.91	17.73	14.22
Devizes Brickley Ch.	Urban B'ground	12.91	12.78	10.25
Devizes Wansdyke Sch	Suburban	12.18	12.06	9.67
Devizes London Rd.	Roadside	20.82	20.61	16.53
Devizes Market Place	Urban Centre	16.36	16.20	12.99
Marl. Herd St	Kerbside	29.36	29.07	23.31
Devizes Wadworths	Kerbside	26.91	26.64	21.37
Ludgershall Castle[3]	Urban B'ground	9.60	9.50	7.60
Seend – Bell[1]	Urban B'ground	13.43	13.29	10.63
Avebury School	Urban B'ground	11.64	11.52	9.24
Devizes Shanes Castle	Kerbside	43.64	43.2	34.65
Devizes Roses	Roadside	34.91	34.56	27.72
Marlborough High St	Roadside	23.55	23.31	18.69
Marlborough St Peters	Roadside	26.55	26.28	21.08
Marlbo. Leisure Cen.[1]	Urban B'ground	9.85	9.75	7.80
Devizes Hillworth Rd[1]	Roadside	19.00	18.81	15.08
Urchfont[2]	Urban B'ground	14.5	14.36	11.49
Aerocan	Urban B'ground	16.82	16.65	13.35
Hillsborough[4]	Roadside	40.75	40.34	32.27
Avalon[4]	Kerbside	23.5	23.26	18.6
St Peters School[5]	Roadside	21.00	20.79	16.63
Upper Herd Street[6]	Kerbside	51.8	51.28	41.02
Shanes Castle 2[4]	Roadside	52.75	52.22	41.76
Shanes Castle Roof[4]	Roadside	39.25	38.86	31.09
Shanes Castle Inside[4]	Inside	16.5	16.33	13.06
Trafalgar Place[5]	Roadside	50.66	50.15	40.12

Key

*all results given in µg/m^3

[1]-Tube site retired in September 2007

[2]-Tube site retired in April 2007

[3]-Tube site retired in July 2007

[4]-Tube site introduced in September 2007

[5]-Tube site introduced in April 2007

[6]-Tube site introduced in July 2007

2.2 Discussion of nitrogen dioxide monitoring

2.2.1 Two air quality objectives have been adopted for nitrogen dioxide in the UK, an annual mean concentration of 40µg/m^3 and a 1-hour mean concentration of 200µg/m^3, not to be exceeded more than 18 times per year. The objectives are to be achieved by the end of 2005.

2.2.2 Additionally, the first European daughter directive also sets limit values for nitrogen dioxide, which has been transposed into UK legislation. The directive objectives mirror the UK air quality objectives set out above, although they are to be achieved by the 1st Jan 2010.

2.2.3 The data presented in Table 2.2 makes interesting reading with several matters standing out. Several issues centre on the monitoring for the detailed assessment at Shanes Castle and will be discussed at length when the detailed assessment is completed. It is not considered appropriate to asses this matter at the present as insufficient data; in key locations only 4 months information is available.

2.2.4 However, it is worth noting that the one site where a full 12 months monitoring is available, Shanes Castle itself, is showing a 2010 projected level below the 40 µg/m^3 objective for annual mean NOx level.

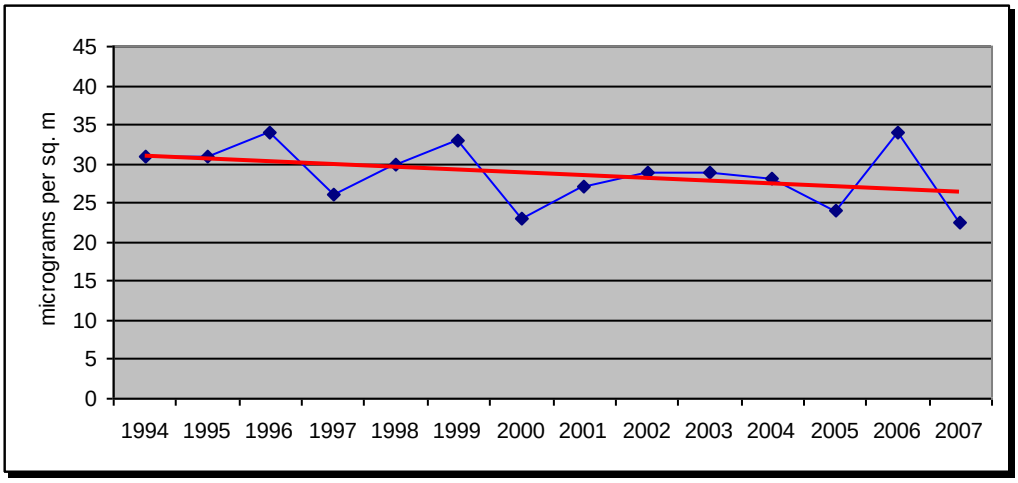
2.2.5 The second site of interest is Upper Herd Street, Marlborough. This site was set up in July 2007 following a complaint from a local resident about the levels of pollution since a pedestrian crossing had been installed slightly down the hill from his house. He claims that this has dramatically increased the levels of congestion at times during the day with a subsequent impact upon the air quality in the area.

2.2.6 As only 6 months data is currently available for this site, it is proposed to report further into this site when submitting the detailed assessment for Shanes Castle later in the year.

2.2.7 Monitoring data for some sites dates back to 1994 which allows for a robust study of the trends. Plotted below are selections of graphs, which show how levels of nitrogen dioxide have varied with time. Each graph includes a linear plot to show the trend in the data. Sites have been selected to represent the different types of monitoring locations employed across the Kennet district.

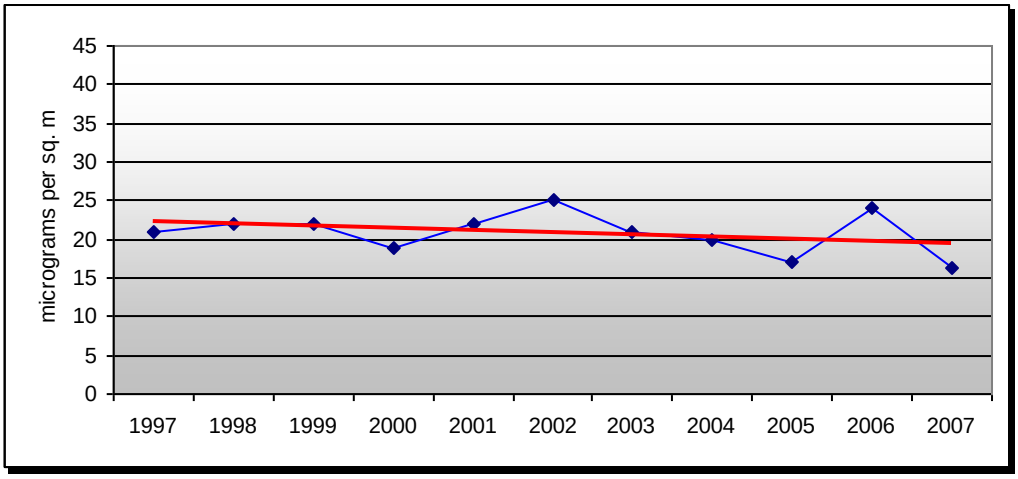
2.2.6 Graph 1 represents the annual trend at the roadside site at Devizes Police Station. The site is adjacent to New Park Street, a busy through road in the town and results date back to 1994. The trend in annual mean concentrations (the solid red line) is down over this period, and the level recorded for 2007 is the lowest yet at the site.

Graph 1 – Annual trend, Devizes Police Station (roadside)



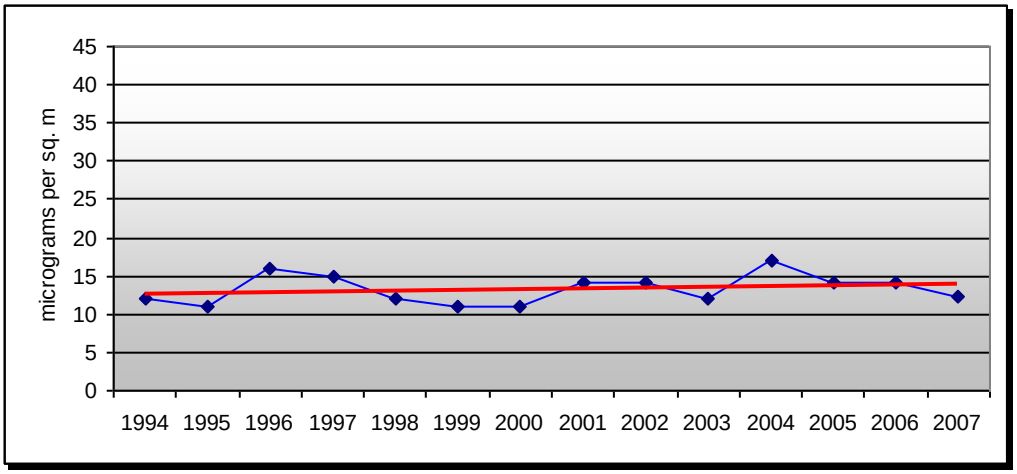
2.2.7 Graph 2 plots the annual trend in the busy Devizes Market Place. The site is an urban centre site and the general trend continues to be a consistent one, with annual mean concentrations relatively low. The 2007 level is again the lowest recorded since monitoring began at the site in 1997.

Graph 2 – Annual trend, Devizes Market Place (urban centre)



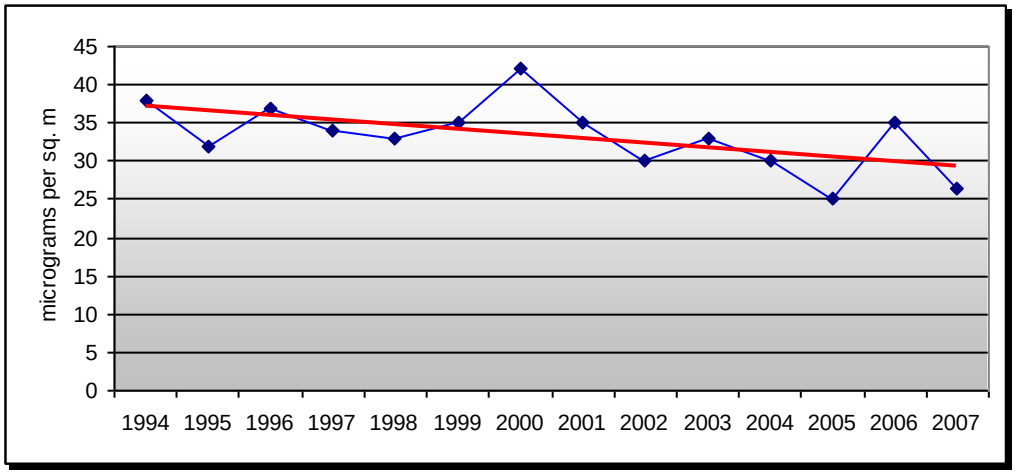
2.2.8 Graph 3 shows the situation at an urban background site in Devizes, the tube being located at Wansdyke Primary School. Annual mean levels at the site have remained low since monitoring was first started in 1994 although a slight upward trend has been noted.

Graph 3 – Annual trend, Wansdyke Primary School (urban background)



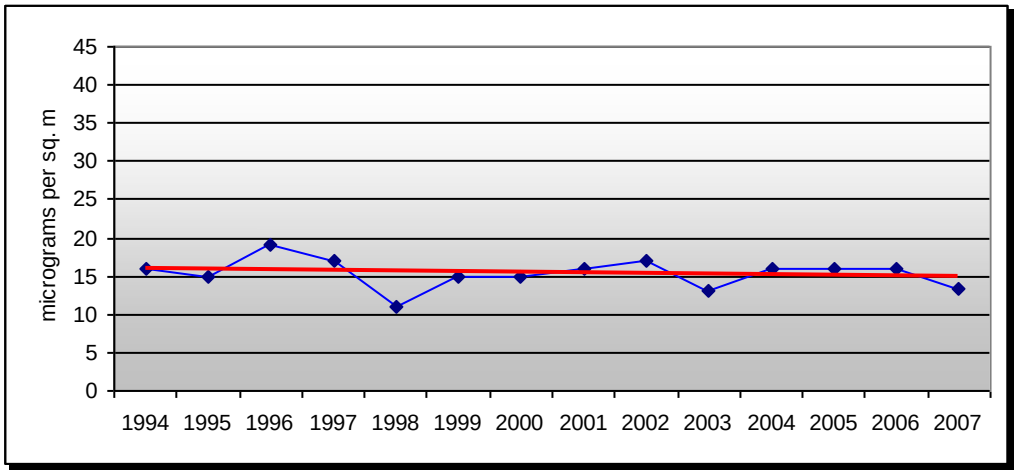
2.2.9 The town of Marlborough is served by a total of 3 nitrogen dioxide monitoring sites, although only the roadside site at St Peters Church has been operating consistently since monitoring began in 1994. The site is adjacent to both carriageways of the busy A4 through road and the trend in annual mean concentrations is demonstrated in Graph 4. The graph shows a downward trend in annual mean concentrations with 2007 levels again being down on the previous year.

Graph 4 – Annual trend, St Peters Church, Marlborough (roadside site)



2.2.10 Elsewhere in the Kennet district, a number of the monitoring sites located at village locations have been employed. Several sites have been in use since 1994 and the trend at the Pewsey Church site is set out in Graph 5. The site is centrally located, away from the main road bisecting the village. The graph again shows a very slight downward trend in nitrogen dioxide concentrations (solid line), with levels of nitrogen dioxide remaining low.

Graph 5 – Annual trend, Pewsey Church (urban centre site)



2.3 Nitrogen dioxide monitoring – conclusions

2.3.1 The primary conclusion to make from the air quality monitoring information set out in this report is that the air quality objectives for nitrogen dioxide will largely be met in the Kennet district.

2.3.2 A detailed assessment of a potential exceedence at a site in Devizes, Shanes Castle is underway and a full report will be submitted later in the year when significant amount of monitoring has been completed at the site.

2.3.3 A second site of concern has been noted. A complaint from a member of the public was received concerning the air quality at Upper Herd Street in Marlborough, where a new set of traffic lights was causing tailbacks up the hill. Early indications from the monitoring carried out at the site indicate that levels are high and it is proposed to report back on this site as part of the detailed assessment into the Shanes Castle site already underway. It should be noted that only 5 months results are available for this site at the time of writing.

2.3.4 Nevertheless, the general trend for annual mean levels of nitrogen dioxide levels across the Kennet district would seem to be slightly down. Graphs have been presented for 5 of the monitoring sites employed, including a couple to show a robust monitoring history at the worst case situation for general public exposure within the main towns of the Kennet district.

2.3.5 Overall, monitored levels of nitrogen dioxide in 2007 are lower than in previous years, this may be related to a number of factors including the notably cooler summer experienced.

CHAPTER 3: Other pollution monitoring

3.1 Summary

3.1.1 As previously reported Kennet District Council has operated a programme of monitoring aimed at assessing the impact of a proposed change to an industrial process located in neighbouring West Wiltshire District Council.

3.1.2 However, towards the end of 2006 it was announced that the application made by the installation operator to initiate the change of process was to be withdrawn. As such the monitoring was concluded as a cost saving exercise but all records have been retained as a record of air quality in the area.

3.1.3 The monitoring has been discussed in previous rounds of Local Air Quality Management reporting and will serve as a valuable benchmarking tool should any further changes to the operating conditions at the Westbury Cement works be proposed.

CHAPTER 4: New local developments

4.1 Industrial sources

4.1.1 No significant local industrial sources of pollutants were identified during the first round of the review and assessment process within the Kennet district. This situation was confirmed in the Update and Screening Assessment for the Kennet district completed in 2006 and remains unchanged to date.

4.1.2 No new Part A installations have been established within the Kennet district since the previous air quality reporting stage.

4.1.3 A Devizes based factory owned by Aerocan UK Limited has completed the installation of a small catalytic incinerator during early 2008. The potential impact of this upon air quality is not expected to be significant, nevertheless Kennet District Council have started to monitor background nitrogen dioxide levels in the vicinity of the plant to allow the impact of the plant to be assessed.

4.1.4 As discussed in this report, the proposed changes to the production processes at the nearby Westbury Cement works have failed to materialise with all plans being withdrawn.

4.2 Planned developments

4.2.1 Liaison with development control officers at Kennet District Council has not realised any significant plans for development likely to significantly impact upon air quality.

4.2.2 No new landfill sites or quarries have been granted permission in the Kennet district since the last air quality reporting stage.

CHAPTER 5: The future of Air Quality Management in Wiltshire

5.1 Summary of the situation

5.1.1 As discussed briefly in section 1.3 of this report, The 5 councils in Wiltshire, including Kennet District Council are to be merged in April 2009 to form the Unitary Wiltshire Council.

5.1.2 Discussions are on-going between the Air Quality Officers in the 5 authorities with regard to the future reporting of Air Quality in the new authority and a report will be submitted to Defra towards the end of 2008 outlining the proposals, as requested in a letter from Tutu Aluko dated 14th April 2008.

CHAPTER 6: Conclusions to the 2007 progress report

6.1 Conclusions to the report

6.1.1 This progress report has concluded that there have been no significant changes within the Kennet district likely to impact upon air quality.

6.1.2 The report has summarised the extensive nitrogen dioxide monitoring carried out and in addition to a site already undergoing a detailed assessment, has identified a second site that may be at risk of exceeding the air quality objectives.

6.1.3 It is proposed to complete a more significant period of monitoring at this site prior to reporting the findings as part of the reporting procedure for the detailed assessment already under way. In the interim, the monitoring of the air quality in this area is to be expanded to examine the significance of the risk, its impact upon other receptors in the vicinity and the full extent of any problem.

6.1.3 Monitoring to assess the impact of a proposed change to an industrial process located in a neighbouring authority has ceased following the withdrawal of the proposals. Nevertheless, the results of the monitoring programme are reported and serve to highlight excellent background air quality in the south west of the Kennet district.

Appendix 1 – Location of Pollution Monitoring Sites.