



2009 and 2010 Air Quality Progress Report and  
Action Plan for

Erewash Borough Council

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

Date July 2011

|                                |                     |
|--------------------------------|---------------------|
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|                                |                            |
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| <b>Report Reference number</b> | AQAP2011                   |
| <b>Date</b>                    | 12 <sup>th</sup> July 2011 |

## Executive Summary

Following the second round of review and assessment in 2005, Erewash Borough Council declared two AQMAs for nitrogen dioxide. Air quality monitoring that was reported within the Updated Screening Assessment 2009 identified areas of NO<sub>2</sub> exceedance at relevant locations within the borough that were not located within the existing AQMAs. These areas where:

- White Lion Square
- Derby Road, Long Eaton
- Bronte Close, Long Eaton

Erewash Borough Council have therefore commissioned a real time monitoring exercise, additional diffusion tubes and associated modelling which will provide data for a detailed assessment of these three areas. The monitoring commenced in February 2011 and will continue for 12 months.

Examination of the 2010 data has identified an additional possible exceedance of the air quality objective for NO<sub>2</sub> on Nottingham road, Ilkeston. However, after a distance correction this brought it under the objective level.

The Stage 4 Review and Assessment undertaken in 2002 identified traffic on the M1 as the sole cause of the exceedance of NO<sub>2</sub> within the AQMAs. The Highways Agency implemented a speed restriction in May 2011 following the widening of the carriageway. This is predicted to reduce emission by up to 8% which may improve air quality within the AQMAs. It may also result in an improvement in the air quality for the location at Bronte Close which is likely to be exceeding because of traffic on the M1.

There are an additional two locations where possible exceedance of the objective for NO<sub>2</sub> is occurring. These are:

- White Lion Square
- Derby Road, Long Eaton

These locations are outside the area of influence of the M1 and if the detailed assessment confirms that there is an exceedance, these sites are likely to be exceeding due to local road traffic pollution. If this is the case Derbyshire County Council will need to be consulted on the design and implementation of possible schemes to reduce traffic emissions.

EBC will next submit a Detailed Assessment in September 2012.

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# 1 Introduction

## 1.1 Description of Local Authority Area

The Borough of Erewash is in Derbyshire, located between Derby and Nottingham. The Borough is comprised of two main towns, Ilkeston and Long Eaton and is a mixture of urban and rural landscapes.

The significant roads within the Borough are the M1 and the A52 dual carriageway between Derby and Nottingham. These roads cross at junction 25 near Sandiacre.

There is no major industry in the Borough of relevance to local air quality.

## 1.2 Purpose of Progress Report

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

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

| <b>Pollutant</b>                                 | <b>Concentration</b>  | <b>Measured as</b>                | <b>Date to be achieved by</b> |
|--|---|-----------------------------------|-------------------------------|
| <b>Benzene</b>                                   | 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                    |
| <b>1,3-Butadiene</b>                             | 2.25 $\mu\text{g}/\text{m}^3$   | Running annual mean               | 31.12.2003                    |
| <b>Carbon monoxide</b>                           | 10.0 $\text{mg}/\text{m}^3$   | Maximum daily running 8-hour mean | 31.12.2003                    |
| <b>Lead</b>                                      | 0.5 $\mu\text{g}/\text{m}^3$  | Annual mean                       | 31.12.2004                    |
|  | 0.25 $\mu\text{g}/\text{m}^3$   | Annual mean                       | 31.12.2008                    |
| <b>Nitrogen dioxide</b>                          | 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                    |
| <b>Particles (PM<sub>10</sub>) (gravimetric)</b> | 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                    |
| <b>Sulphur dioxide</b>                           | 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

| Report Title                      | Date | Summary   |
|-----------------------------------|------|---|
| Stage 3 Review and Assessment     | 2000 | <p>The report determined a likely exceedence of the NO<sub>2</sub> objective near the M1 at Long Eaton and Sandiacre.</p> <p>As a result two AQMAs were declared (see appendix 1 and 2).</p>  |
| Stage 4 Assessment                | 2002 | <p>Modelling was undertaken to reassess the AQMA boundaries. It concluded that the AQMA boundaries were sufficient and no changes were required</p>   |
| Updating and Screening Assessment | 2003 | <p>The report concluded that the annual mean NO<sub>2</sub> concentrations were likely to be exceeded in 2005 within the designated AQMAs and also at two additional locations outside the AQMAs.</p> <p>It was recommended to proceed to a Detailed Assessment for tow additional locations of possible exceedence (the Nottingham Road/Chalons Way/Derby Road Junction, and the M1 north-east of Junction 25 of the M1 and south of the Sandiacre AQMA)</p> <p>The diffusion tube network was extended to include all possible areas of exceedence outside the AQMAs.</p> |
| Detailed Assessment               | 2005 | <p>The two locations outside of the existing AQMAs were assessed for NO<sub>2</sub> using the detailed modelling, as recommended in the 2003 USA.</p> <p>The assessment concluded that neither the annual or hourly objectives for NO<sub>2</sub> were likely to be exceeded therefore the extents of the AQMAs did not need to be amended.</p>   |
| Progress Report                   | 2005 | <p>Diffusion tube monitoring found several areas to be exceeding the annual mean NO<sub>2</sub> objective. However, subsequent monitoring found that amendments to the existing AQMAs were not necessary.</p>   |
| Updating and Screening Assessment | 2006 | <p>The report confirmed that the existing AQMA boundaries were appropriate. No other areas of exceedence were predicted outside the AQMAs.</p>  |
| Progress Report                   | 2008 | <p>The report determined that monitoring was sufficient to indicate that concentrations of NO<sub>2</sub> continue to the exceeded within the AQMAs. No other areas of exceedence were identified by the monitoring.</p>  |
| Updating and Screening Assessment | 2009 | <p>Exceedences of the NO<sub>2</sub> annual mean objective have been measured at locations outside of the existing Air Quality Management Area, either at locations of relevant exposure, or near to location of relevant exposure.</p> <p>On the basis of the NO<sub>2</sub> monitoring results the report concludes that it will be necessary to proceed to a Detailed Assessment for NO<sub>2</sub> for those areas in proximity to the M1, A52 and A6005 in order to reassess the extent of the current AQMAs.</p>  |



|                     |          |  |
|---------------------|----------|--|
|                     |          | The widening of the M1 carriageway is likely to result in an air quality impact. Therefore the Detailed Assessment will also examine the implication of the M1 Widening on NO <sub>2</sub> concentrations. |
| Detailed Assessment | Due 2012 | Diffusion tube network extended. Automatic monitoring for NO <sub>2</sub> commenced in February 2011 for 12 months. Detailed assessment is due to be published August 2012.                                |

## 2 New Monitoring Data

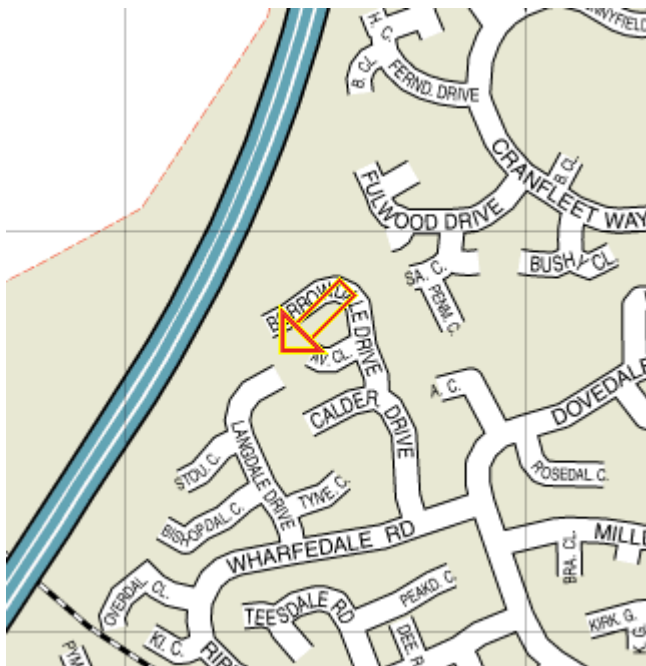
### 2.1 Summary of Monitoring Undertaken

#### 2.1.1 Automatic Monitoring Sites

A new automatic monitoring site was located within the borough on 10<sup>th</sup> February 2011 (see figure 1). The air quality monitoring station is measuring nitrogen dioxide only, and the monitoring will be undertaken for a period of 12 months. The site is being run by consultancy company, Entec UK Ltd and is manually calibrated every two weeks along with automatic calibrations. A quarterly report has been written based on the available data. Please see attached report titled Air Quality Monitoring, 1<sup>st</sup> Quarterly Report.

The Monitoring Station has been located on Langdale Drive as this is the closest practical possible relevant exposure site to the to the exceeding NO<sub>2</sub> tube for the M1. It is a relevant location that is close to houses and is also in close proximity to the M1.

**Figure 2.1 Map of Automatic Monitoring Site**



**Table 2.1 Details of Automatic Monitoring Sites**

| <b>Site Name</b> | <b>Site Type</b>        | <b>OS Grid Ref</b> |        | <b>Pollutants Monitored</b> | <b>Monitoring Technique</b> | <b>In AQMA?</b> | <b>Relevant Exposure?</b><br>(Y/N with distance (m) to relevant exposure) | <b>Distance to kerb of nearest road</b><br>(N/A if not applicable) | <b>Does this location represent worst-case exposure?</b> |
|------------------|-------------------------|--------------------|--------|-----------------------------|-----------------------------|-----------------|---|--|--|
| Langdale Drive   | Other (proximity to M1) | 447192,            | 332847 | NO2                         | Chemoilluminescent Analyser | N               | Y (6M)  | 87m (from M1)  | N  |

### 2.1.2 Non-Automatic Monitoring Sites

In 2009 and 2010 EBC had 18 Diffusion Tube sites within the borough.

The tubes were provided and analysed by Staffordshire Scientific Services using 20% TEA 80% Water as outlined in the Practical Guidance document AEA/ENV/R/2504 Issue 1a Section 2.6.2.

Two blank diffusion tubes were supplied with each batch and were not exposed. These tubes were stored in a refrigerator for the monitoring period.

The bias factors used to adjust the values shown were sourced from the Defra National Diffusion Tube Bias Adjustment Factor Spreadsheet. The factors were:

- 2009 - 0.81
- 2010 - 0.87

Staffordshire Scientific Services take part in the WASP and NETCEN accreditation schemes. According to the Quarterly summaries of participating laboratories' performance in the WASP scheme over the preceding 12 months, prepared by AEA, Staffordshire CC DC were rated good in both 2009 and 2010 studies.

This report will comment on the 18 diffusion sites within the borough, identified in Figure 2.2. However, in December 2010 changes were made to the diffusion tube network. This included the decommissioning of three sites that did not give significant NO<sub>2</sub> levels or where a tube was sited close to another tube. In addition, there were three new monitoring sites identified which includes a co-location study.

The following summarises those changes to the tubes sites;

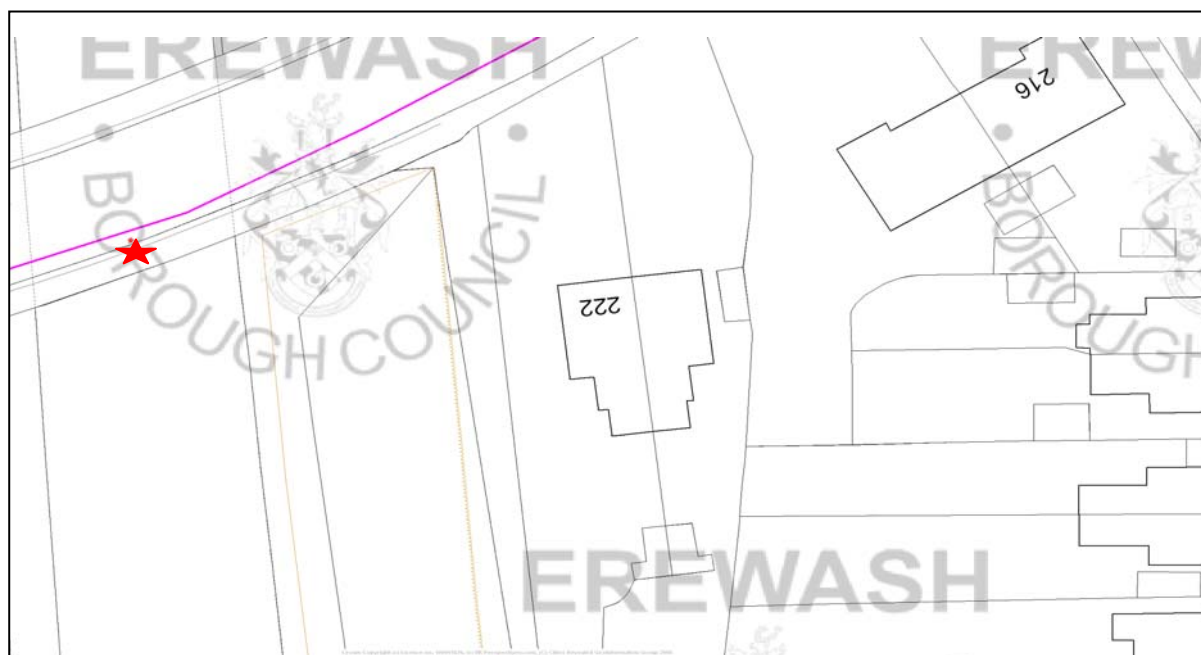
**Table 2.1 Decommissioned NO<sub>2</sub> Diffusion Tube Sites**

| Tube Reference | Date decommissioned | Reason  |
|----------------|---------------------|---|
| EBC 3          | 4/11/10             | Lamp Post was removed and there was no suitable alternative.  |
| EBC 15         | 7/12/10             | Tube was moved nearer to the relevant exposure recipient. Now known as EBC 20.                            |
| EBC 16         | 7/12/10             | No significant levels of NO <sub>2</sub> recorded at this site. It was decided to decommission this site. |
| EBC 17         | 7/12/10             | No significant levels of NO <sub>2</sub> recorded at this site. It was decided to decommission this site. |

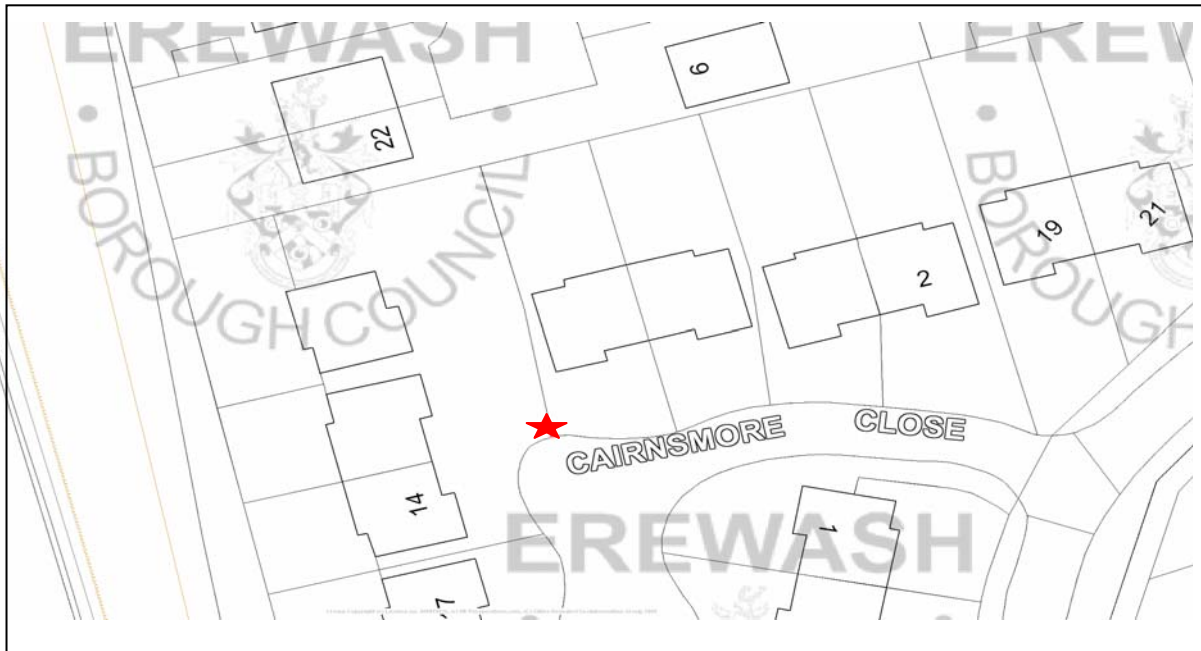
**Table 2.2 New NO<sub>2</sub> Diffusion Tube Sites**

| Tube Reference | Date commissioned | Reason  |
|----------------|-------------------|---|
| EBC 20         | 7/12/10           | New tube location at White Lion Square closer to the relevant exposure recipient.   |
| EBC 21         | 7/12/11           | New Site at relevant exposure on Derby Road, Long Eaton where NO <sub>2</sub> levels are predicted to be exceeding the national target. |
| EBC 22         | 3/3/11            | Co-location study on the air quality monitoring station.  |

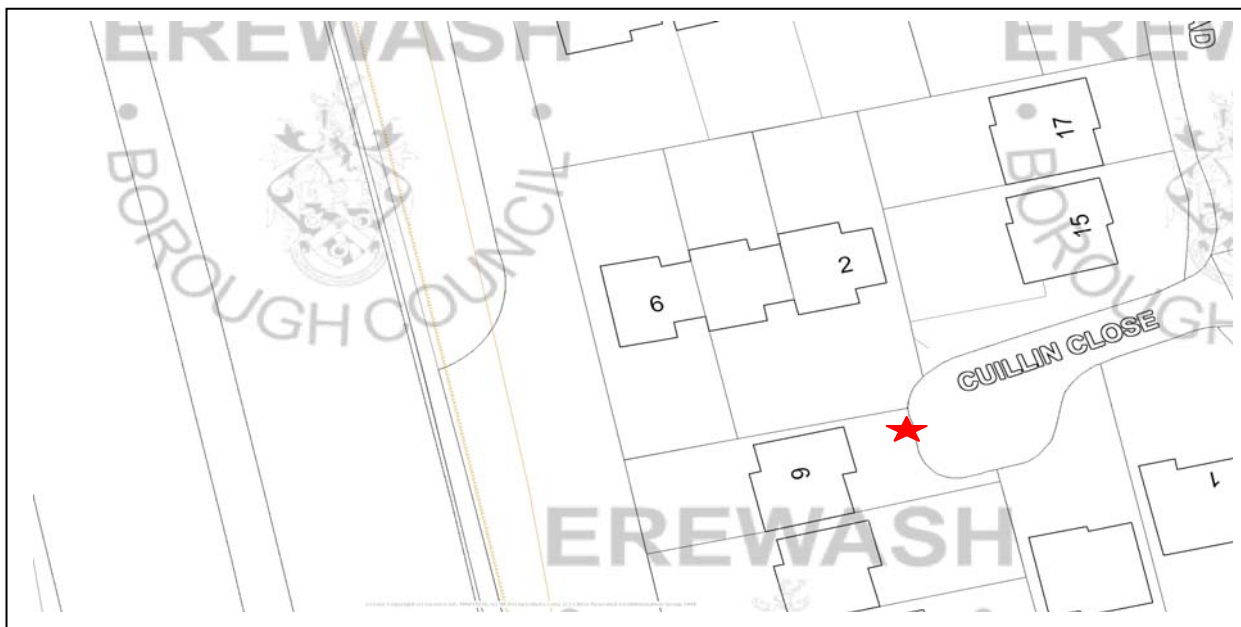
**Figure 2.2 Maps of Non-Automatic Monitoring Sites**



**Diffusion Tube Map: Derby Road, Sandiacre, EBC/1/1**



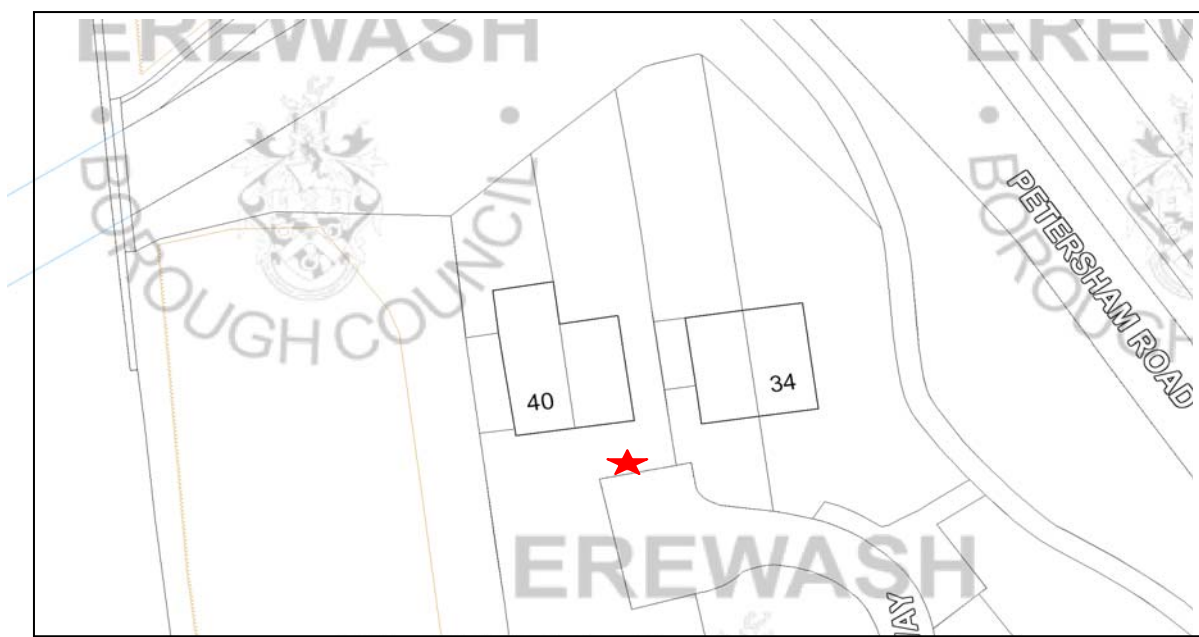
**Diffusion Tube Map: Cairnsmore Close, Long Eaton, EBD/1/2**



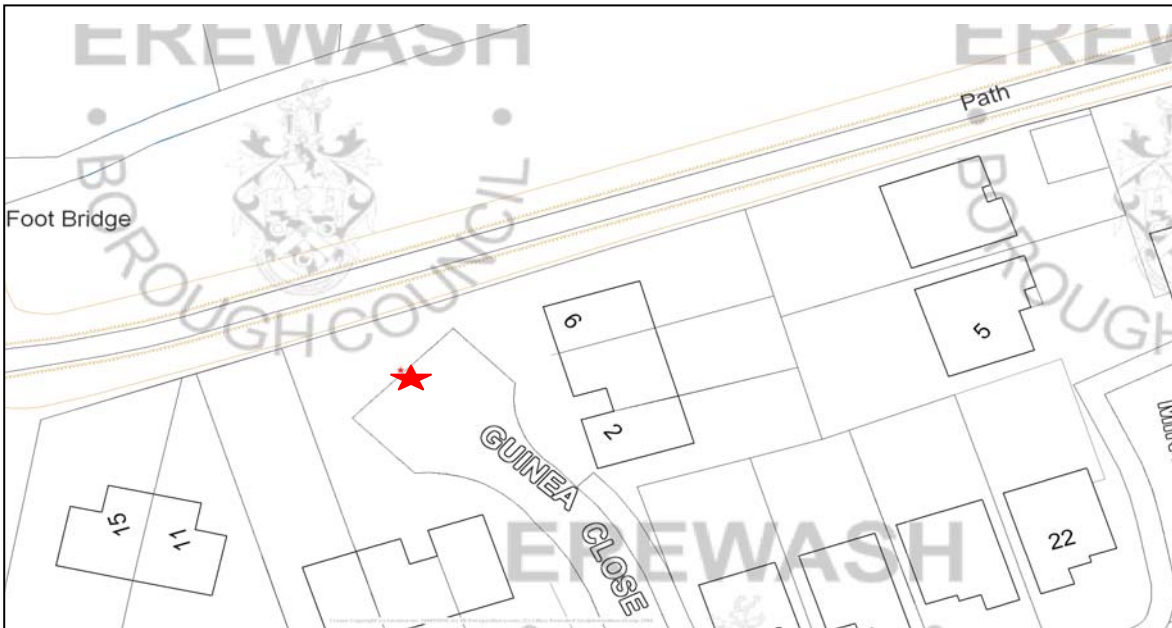
**Diffusion Tube Map: Cullin Close, Long Eaton, EBC/1/3**



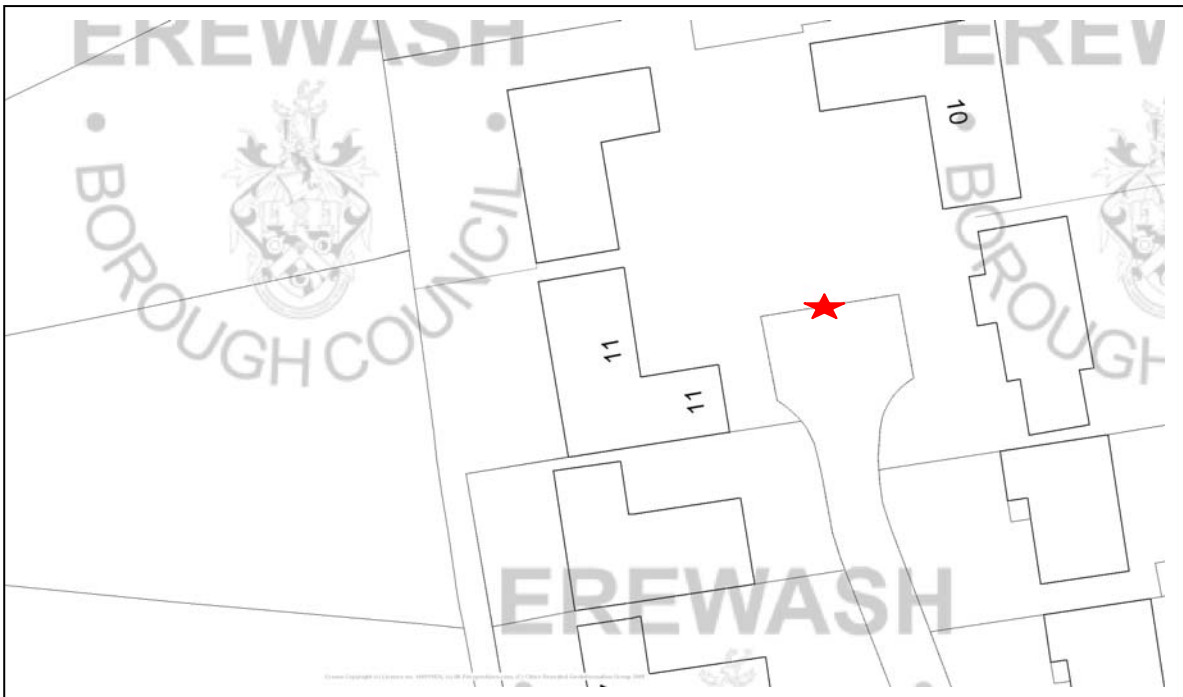
**Diffusion Tube Map: Copseside Close, Long Eaton, EBC/1/4**



**Diffusion Tube Map: Brendon Way, Long Eaton, EBC/1/5**

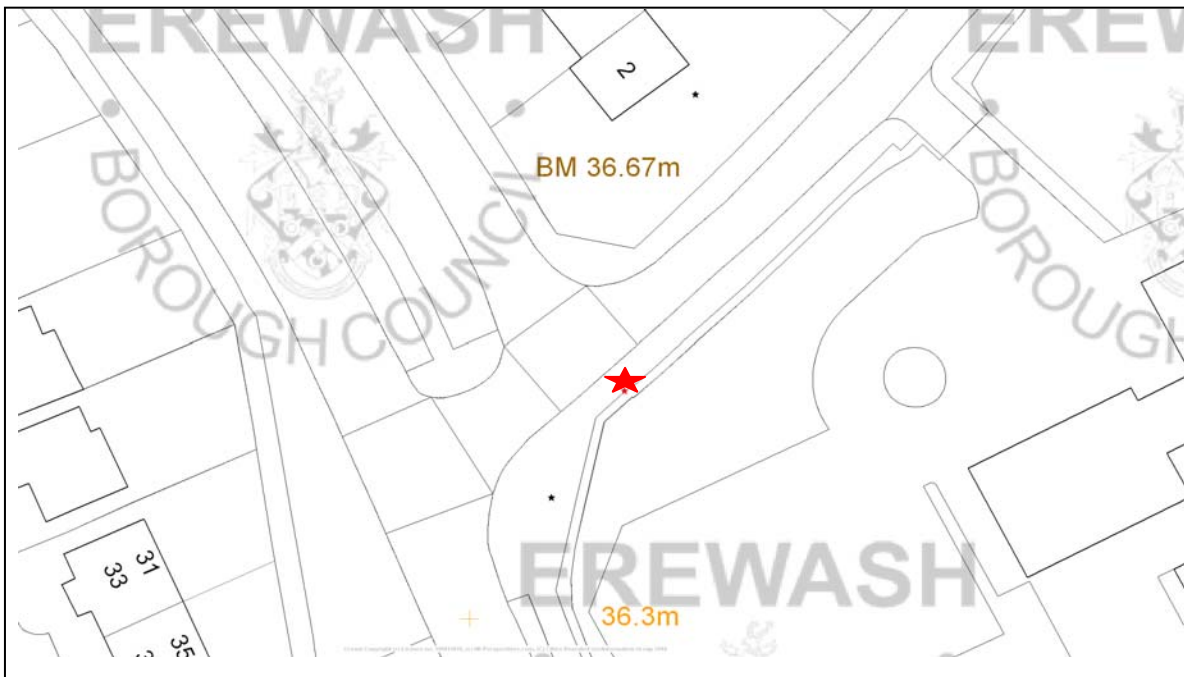


**Diffusion Tubes Map: Guinea Close, Long Eaton, EBC/1/6**

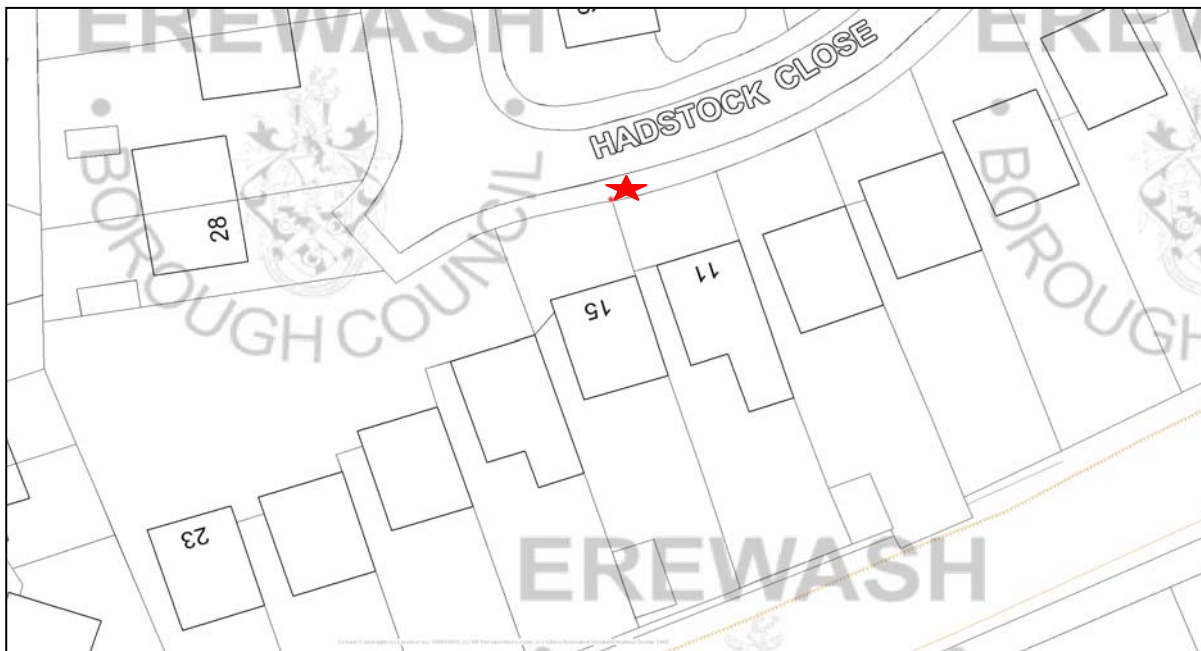


**Diffusion Tube Map: Heath Gardens, Breaston EBC/1/7**

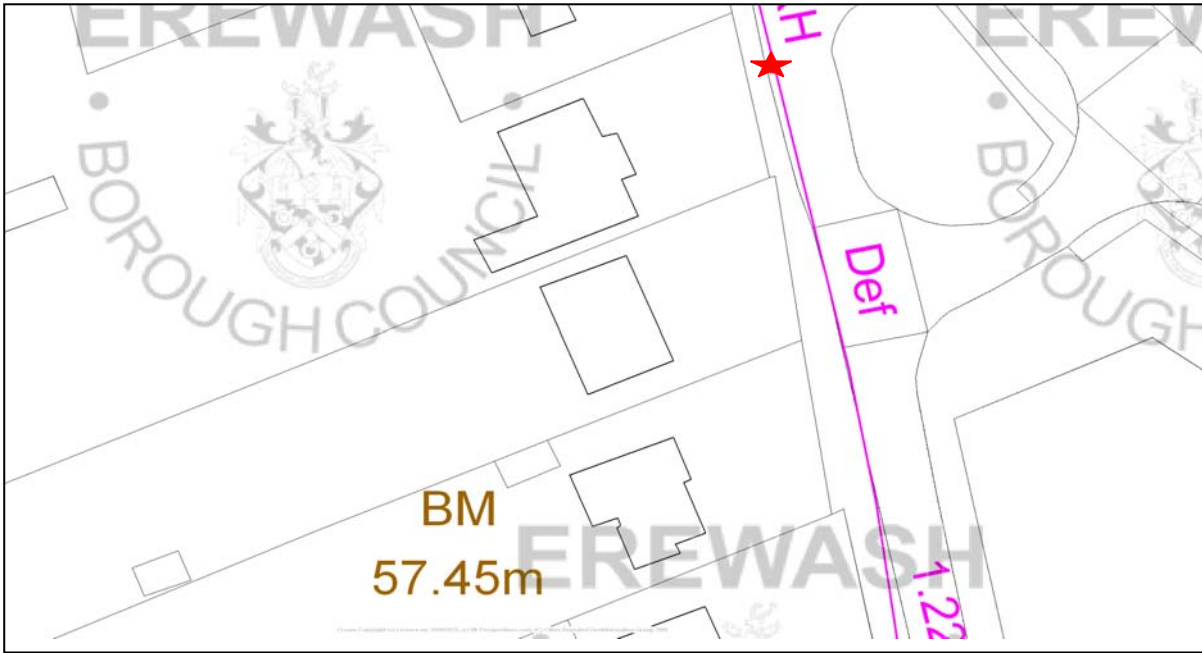




**Diffusion Tube Map: Bracken Road, Long Eaton, EBC/1/8**



**Diffusion Tube Map: Hadstock Close, Sandiacre, EBC/1/9**



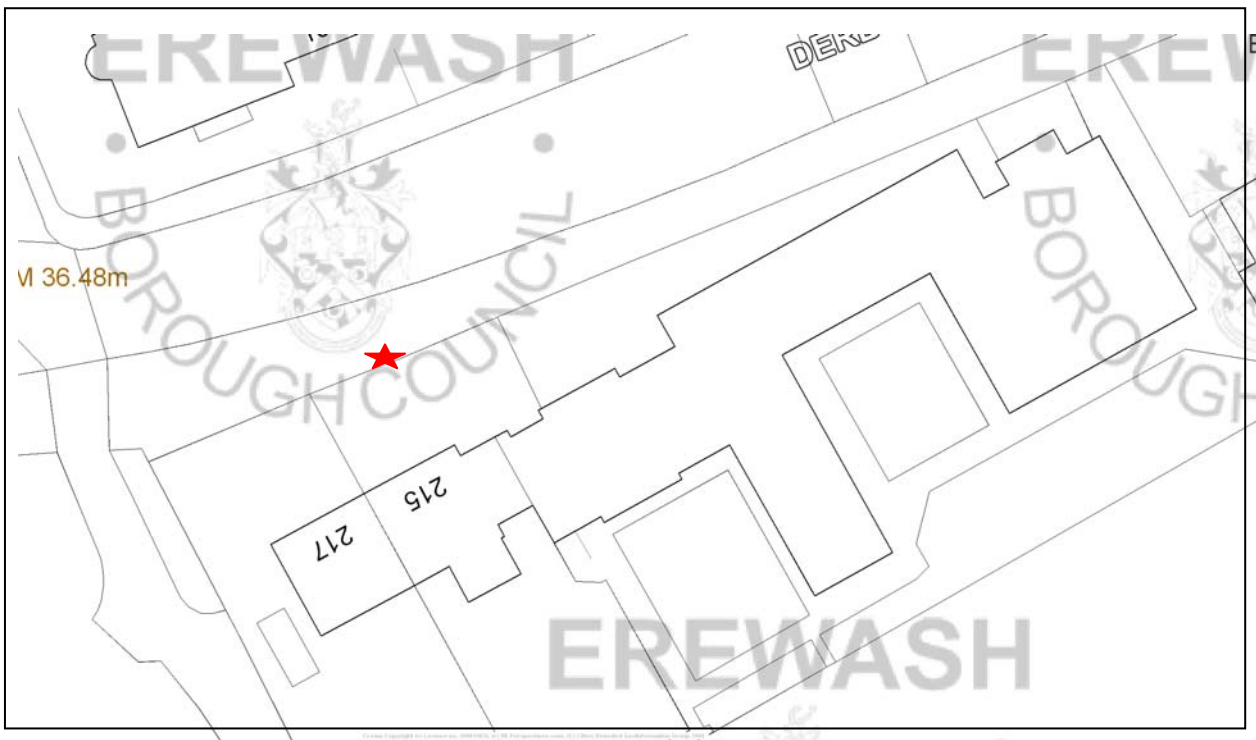
**Diffusion Tube Map: Bostocks Lane, Risley, EBC/1/10**



**Diffusion Tube Map: Bronte Close, Long Eaton, EBC/1/11**



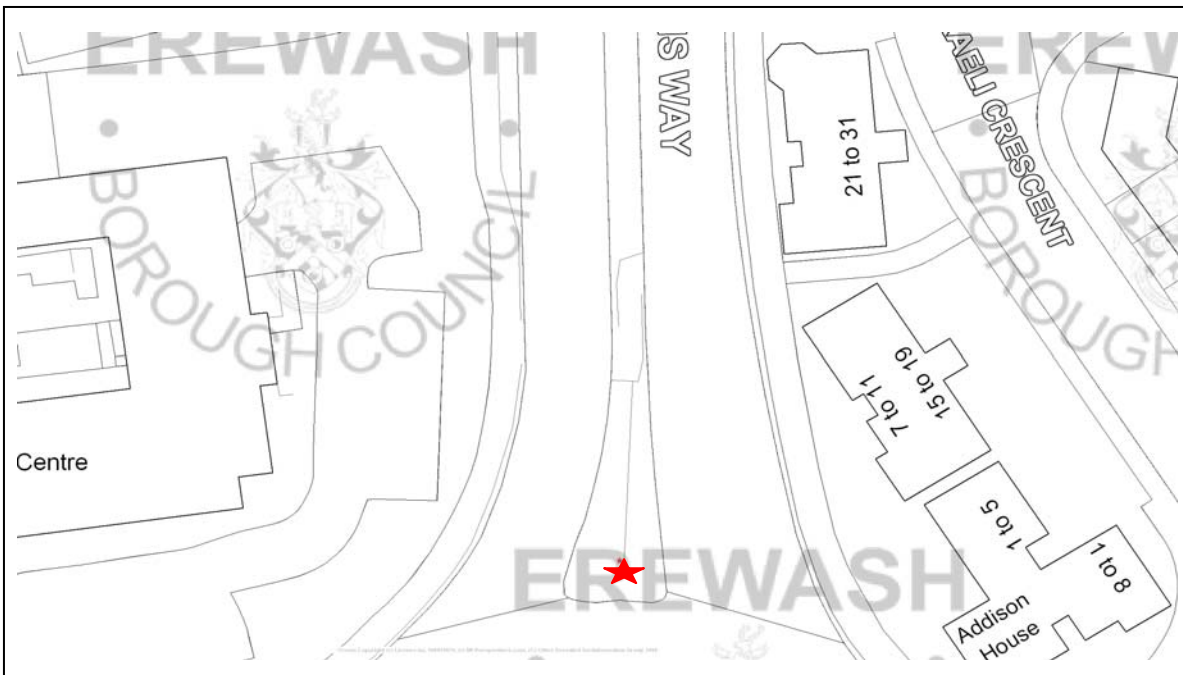
**Diffusion Tube Map: Bronte Close, Long Eaton, EBC/1/12**



**Diffusion Tube Map: 215 Derby Road, Long Eaton, EBC/1/15**

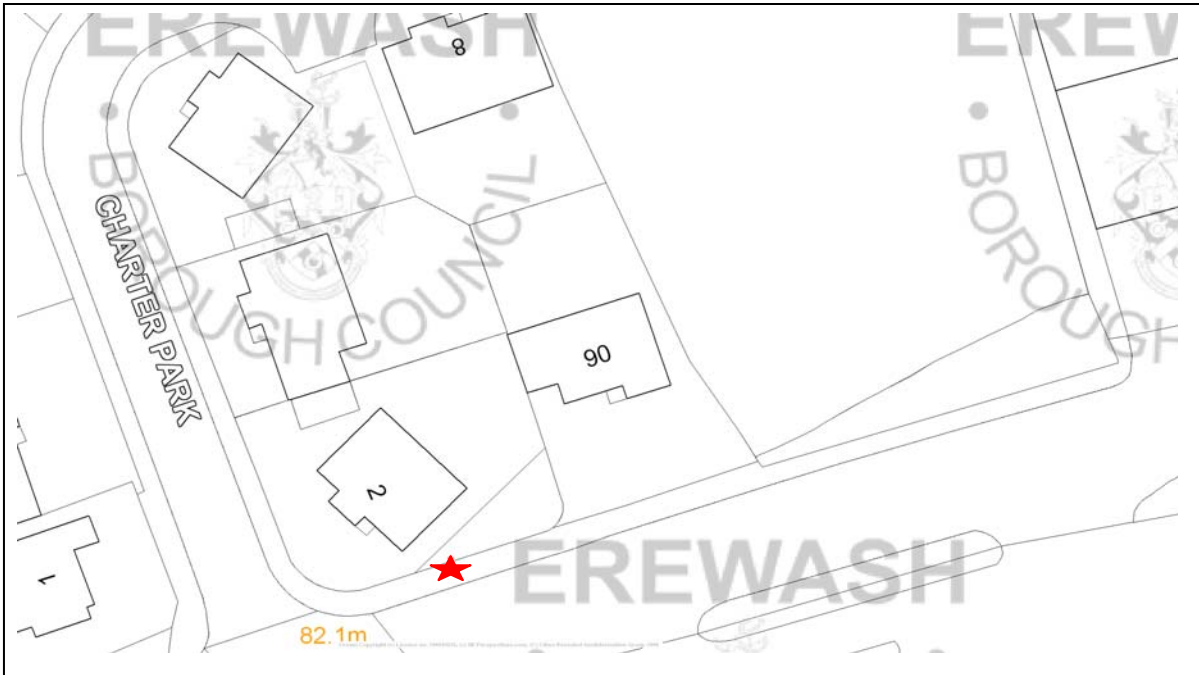


**Diffusion Tube Map: Nottingham Road, Ilkeston, EBC/1/14**

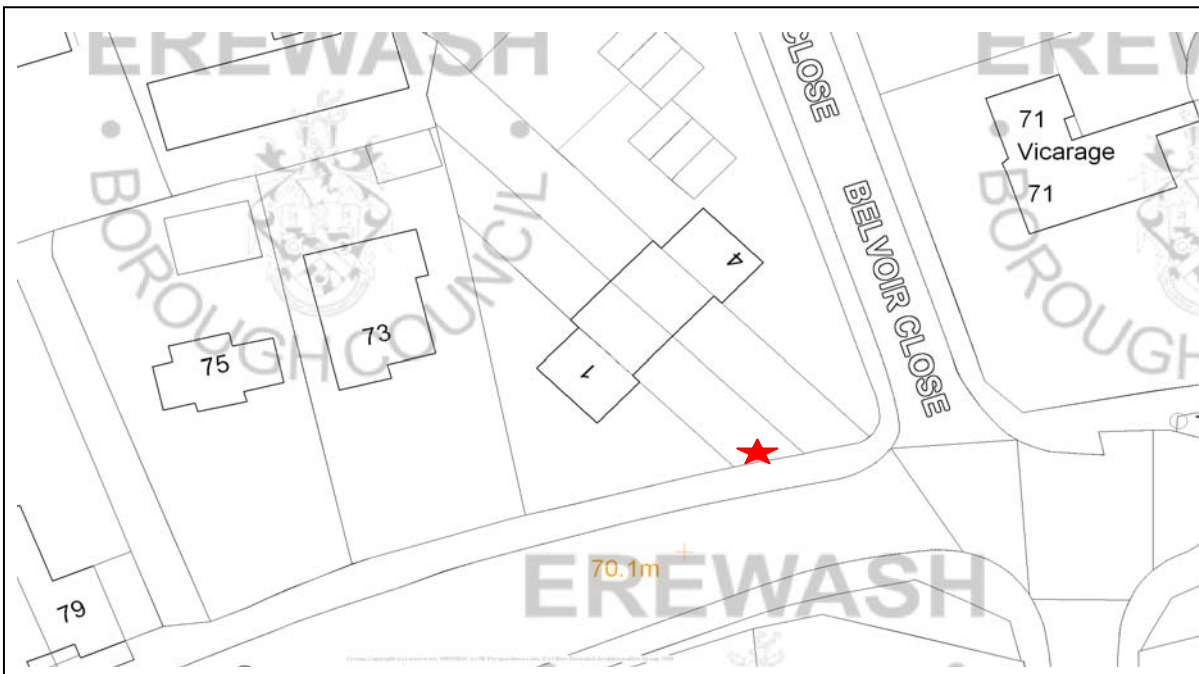


**Diffusion Tube Map: White Lion Square, Ilkeston, EBC/1/15**





**Diffusion Tube Map: Derby Road, Ilkeston, EBC/1/16**



**Diffusion Tube Map: Belvoir Close, Ilkeston, EBC/1/17**



**Diffusion Tube Map: Richmond Avenue, Sandiacre, EBC/1/18**

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? |
|---|-------------------------------|-------------|--------|----------------------|-----------|---|--|----------------------|
| EBC/1/1<br>Derby Road,<br>Sandiacre           | Kerbside                      | 447177      | 336113 | NO <sub>2</sub>      | Y         | N (35m)   | <1m  | Y                    |
| EBC/1/2<br>Cairnsmore<br>Close, Long<br>Eaton | Other<br>(proximity to<br>M1) | 447296      | 334193 | NO <sub>2</sub>      | Y         | Y   | 40m  | N                    |
| EBC/1/3<br>Cullin Close,<br>Long Eaton        | Other<br>(proximity to<br>M1) | 47307       | 334107 | NO <sub>2</sub>      | Y         | Y   | 35m  | N                    |
| EBC/1/4<br>Copseside<br>Close, Long<br>Eaton  | Other<br>(proximity to<br>M1) | 447333      | 333588 | NO <sub>2</sub>      | Y         | Y   | 35m  | Y                    |
| EBC/1/5<br>Brendon<br>Way, Long<br>Eaton      | Other<br>(proximity to<br>M1) | 447211      | 334543 | NO <sub>2</sub>      | Y         | Y   | 40m  | Y                    |

Date July 2011

Erewash Borough Council - England



|  |                               |        |        |                 |   |         |      |   |
|--|-------------------------------|--------|--------|-----------------|---|---------|------|---|
| EBC/1/6<br>Guinea<br>Close, Long<br>Eaton    | Other<br>(proximity to<br>M1) | 447356 | 333422 | NO <sub>2</sub> | N | Y       | 75m  | N |
| EBC/1/7<br>Heath<br>Gardens,<br>Breaston     | Urban<br>Background           | 447016 | 333792 | NO <sub>2</sub> | N | Y       | 100m | N |
| EBC/1/8<br>Bracken<br>Road, Long<br>Eaton    | Kerbside                      | 447544 | 334195 | NO <sub>2</sub> | N | N (20m) | 2m   | N |
| EBC/1/9<br>Hadstock<br>Close,<br>Sandiacre   | Other<br>(proximity to<br>M1) | 447586 | 335881 | NO <sub>2</sub> | N | Y       | 50m  | N |
| EBC/1/10<br>Bostocks<br>Lane, Risley         | Urban<br>background           | 446946 | 335728 | NO <sub>2</sub> | N | Y       | 20m  | N |
| EBC/1/11<br>Bronte<br>Close, Long<br>Eaton   | Other<br>(proximity to<br>M1) | 447280 | 333161 | NO <sub>2</sub> | N | Y       | 60m  | N |
| EBC/1/12<br>128 Derby<br>Road, Long<br>Eaton | Kerbside                      | 448306 | 334054 | NO <sub>2</sub> | N | N (3m)  | 3m   | Y |
| EBC/1/13<br>215 Derby<br>Road, Long<br>Eaton | Kerbside                      | 448056 | 333933 | NO <sub>2</sub> | N | N (5m)  | 5m   | Y |
| EBC/1/14<br>Nottingham<br>Road,<br>Ilkeston  | Kerbside                      | 447291 | 340647 | NO <sub>2</sub> | N | N (5m)  | 2m   | Y |

|   |                               |        |        |                 |   |  |      |   |
|---|-------------------------------|--------|--------|-----------------|---|--|------|---|
| EBC/1/15<br>White Lion<br>Square,<br>Ilkeston | Kerbside                      | 446634 | 341406 | NO <sub>2</sub> | N | N (located<br>on a traffic<br>island away<br>from<br>relevant<br>exposure) | N/A  | Y |
| EBC/1/16<br>Derby Road,<br>Ilkeston           | Kerbside                      | 446083 | 341333 | NO <sub>2</sub> | N | N (2m)   | 2m   | Y |
| EBC/1/17<br>Belvoir<br>Close,<br>Ilkeston     | Kerbside                      | 445803 | 340473 | NO <sub>2</sub> | N | N (8m)   | 2m   | Y |
| EBC/1/18<br>Richmond<br>Avenue,<br>Sandiacre  | Other<br>(proximity to<br>M1) | 447314 | 335831 | NO <sub>2</sub> | Y | Y  | 100m | N |

## 2.2 Comparison of Monitoring Results with Air Quality Objectives

### 2.2.1 Nitrogen Dioxide

During 2009 and 2010 there was no automatic monitoring undertaken within the borough. An automatic monitor was installed in February 2011 which is planned to be on site for 12 months.

#### Diffusion Tube Monitoring Data

Table 2.4 shows the bias adjusted mean data for the nitrogen dioxide diffusion tubes within the Borough of Erewash.

**Table 2.4 Results of Nitrogen Dioxide Diffusion Tubes**

| Site ID  | Location                    | Within AQMA? | Relevant public exposure? Y/N | Data Capture for full calendar year 2009 % | Data Capture for full calendar year 2010 % | Annual mean concentrations ( $\mu\text{g}/\text{m}^3$ ) |      |      |
|----------|-----------------------------|--------------|-------------------------------|--|--|---|------|------|
|          |                             |              |                               |  |  | 2008  | 2009 | 2010 |
| EBC/1/1  | Derby Road Sandiacre        | Y            | N                             | 100  | 100  | 63.7  | 53   | 63   |
| EBC/1/2  | Cairnsmore Close Long Eaton | Y            | Y                             | 100  | 100  | 44.1  | 38   | 44   |
| EBC/1/3  | Cuillin Close Long Eaton    | Y            | Y                             | 100  | 75   | 46.0  | 39   | 40   |
| EBC/1/4  | Copeside Close Long Eaton   | Y            | Y                             | 100  | 100  | 46.3  | 38   | 43   |
| EBC/1/5  | Brendon Way Long Eaton      | Y            | Y                             | 100  | 100  | 46.6  | 38   | 46   |
| EBC/1/6  | Guinea Close Long Eaton     | N            | Y                             | 58   | 100  | 38.2  | 35   | 38   |
| EBC/1/7  | Heath Gardens Breaston      | N            | Y                             | 100  | 100  | 23.2  | 23   | 27   |
| EBC/1/8  | Bracken Road Long Eaton     | N            | N                             | 100  | 100  | 38.0  | 33   | 39   |
| EBC/1/9  | Hadstock Close Sandiacre    | N            | Y                             | 100  | 100  | 36.9  | 33   | 36   |
| EBC/1/10 | Bostocks Lane Risley        | N            | Y                             | 100  | 100  | 26.1  | 26   | 30   |
| EBC/1/11 | Bronte Close Long Eaton     | N            | Y                             | 100  | 100  | 40.2  | 36   | 40   |
| EBC/1/12 | 128 Derby Road Long Eaton   | N            | N                             | 100  | 100  | 45.0  | 37   | 43   |
| EBC/1/13 | 215 Derby Road Long Eaton   | N            | N                             | 100  | 100  | 41.9  | 37   | 42   |
| EBC/1/14 | Nottingham Road Ilkeston    | N            | N                             | 100  | 92   | 36.6  | 35   | 40   |

|          |                             |   |   |     |     |      |    |    |
|----------|-----------------------------|---|---|-----|-----|------|----|----|
| EBC/1/15 | White Lion Squares Ilkeston | N | N | 100 | 92  | 42.4 | 41 | 47 |
| EBC/1/16 | Derby Road Ilkeston         | N | N | 100 | 92  | 27.2 | 27 | 29 |
| EBC/1/17 | Belvoir Close Ilkeston      | N | N | 100 | 83  | 31.0 | 29 | 31 |
| EBC/1/18 | Richmond Avenue Sandiacre   | Y | Y | 100 | 100 | 36.7 | 33 | 38 |

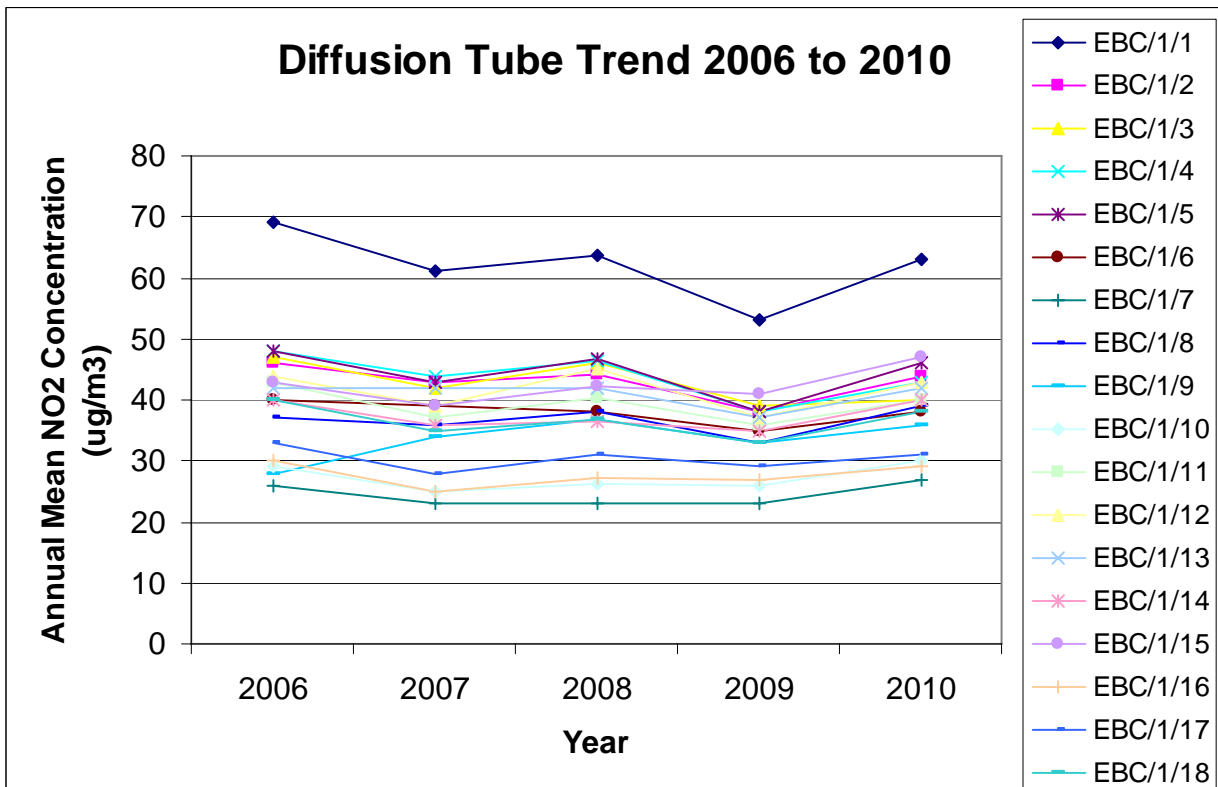
Note: All NO<sub>2</sub> diffusion tube sites within EBC are located in Triplicate and the above results are the mean. Full unadjusted raw data can be seen in Appendix 3.

As it can be seen from table 2.4, the diffusion tubes located within the existing AQMAs are currently exceeding the air quality monitoring objectives with the exception of Richmond Avenue, Sandiacre. Diffusion tube EBC/1/1 is reading particularly high levels of NO<sub>2</sub>. This exceeded 60ug/m<sup>3</sup> in 2010 and has done so in previous years. This tube is not ideally located as it is sited on a bridge over the M1 carriageway and therefore no drop off calculation can be undertaken. However, due to the close proximity of the housing to the M1 Carriageway it is unlikely to be a significantly lower level of NO<sub>2</sub> at the receptor.

It was identified in the last USA report that tubes EBC/1/11, 12, 13, and 15 have now started to exceed the NO<sub>2</sub> objective. This issue is being addressed via additional monitoring and a detailed assessment which will be completed by September 2012.

It is also noted that EBC/1/14, Nottingham Road, Ilkeston is now exceeding the NO<sub>2</sub> objective. However, a distance calculation can be applied to this tube. When this is calculated, using the Air Quality Consultant NO<sub>2</sub> with distance from road calculator, the result is then 36.4. This is below the objective level.

**Figure 2.3 Trends in Annual Mean Nitrogen Dioxide Concentration Measured at Diffusion Tube Monitoring Sites.**



It can be seen from the figure 2.3 that the trend over the five year period from 2006 to 2010 is at a mainly constant level overall. There seemed to be a decrease in NO<sub>2</sub> levels during 2009 but in 2010 the levels increased again similar to those in 2008.

**2.2.2 PM<sub>10</sub>**

PM<sub>10</sub> is not monitored at any location in the Borough.

**2.2.3 Sulphur Dioxide**

Sulphur Dioxide is not monitored at any location in the Borough.

**2.2.4 Summary of Compliance with AQS Objectives**

Erewash Borough Council has measured concentrations of NO<sub>2</sub> above the annual mean at relevant locations outside of the current AQMA and is currently undertaking a detailed assessment for NO<sub>2</sub> for the areas around White Lion Square Ilkeston, Derby Road, Long Eaton and Bronte Close (M1).

### **3 New Local Developments**

#### **3.1 Road Traffic Sources**

The M1 motorway has undergone development within the borough. This has involved widening the carriageway between junction 25 and 28. The works commenced in 2007 and were completed by April 2010. This will have impacted on the air quality results of tubes EBC/1/1, 2, 3, 4, 5, 6, 7, 11, and 18.

In addition, the Highways Agency has introduced a variable speed restriction on the section of the M1 that has undergone widening. The speed restrictions were put in place in May 2011. It has been estimated that this will reduce emissions by 8%.

The impact of this will be taken into consideration in the next Detailed Assessment scheduled to be published in 2012.

#### **3.2 Other Transport Sources**

Erewash Borough Council confirms that there are no other new transport sources in the Borough.

#### **3.3 Industrial Sources**

Erewash Borough Council confirms that there are no new industrial sources in the Borough.

#### **3.4 Commercial and Domestic Sources**

Erewash Borough Council confirms that there are no new commercial and Domestic Sources.

#### **3.5 New Developments with Fugitive or Uncontrolled Sources**

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

## **4 Local / Regional Air Quality Strategy**

Erewash Borough Council does not currently have a published Local Air Quality Strategy.

## **5 Planning Applications**

Erewash Borough Council confirms that there are no approved planning applications that will impact upon air quality. However there has been a small development of four houses that has been given planning approval very close to the M1 which may suffer from poor air quality. This site may need to be monitored to assess the impact.

Talks are taking place to propose a large mixed industrial and residential site on Lows Lane, Ilkeston where the former Stanton Iron works were located. The plans included redirecting HGVs and local traffic through White Lion Square and Nottingham Road, two areas that are already possibly exceeding the NO2 air quality objectives. This development will increase local traffic and have a potential air quality impact.



## **6 Air Quality Planning Policies**

Erewash Borough Council does not have any specific Air Quality planning policies although air quality would be a material consideration for applications made within an AQMA in line with the national planning policy PPS 23.

The national planning policy, Planning Policy Statement 23: Planning and Pollution Control, acknowledges that a proposed development should be assessed if there is a likely impact on air quality and that the findings of air quality reviews and assessments will be important in the consideration of local air pollution problems and the siting of certain types of development.

## **7 Local Transport Plans and Strategies**

The Local Transport Plan 2011-2026 published by Derbyshire County Council aims to:

- Reduce the impact on air quality due to local traffic.
- Reduce the emission of air quality pollutants for transport in declared Air Quality Management Areas which relate to local traffic.

## **8 Climate Change Strategies**

Erewash Borough Council has no specific Climate Change Strategies.

## 9 Implementation of Action Plans

A combined progress report and action plan for Erewash Borough Council was submitted in 2009. This set out the national air quality objectives and targets for the range of air pollutants. Of particular interest is the national target for NO<sub>2</sub> which are as follows:

| Pollutant        | Status                 | Time Period | Objective/Value  | To be achieved by |
|------------------|------------------------|-------------|--|-------------------|
| Nitrogen dioxide | Statutory UK Objective | 1-Hour mean | 200 ug/m <sup>3</sup> not to be exceeded more than 18 times a year | 2005              |
|                  |                        | Annual mean | 40 ug/m <sup>3</sup>   | 2005              |

Air quality objectives are only applicable where member of the public are likely to be regularly present and are likely to be exposed over the averaging time of the objective.

Following the second round of review and assessment in 2005, Erewash Borough Council declared two AQMAs for nitrogen dioxide. The Updating Screening Assessment 2009 identified further areas of possible exceedence of NO<sub>2</sub> outside of the current AQMAs. In response to this Erewash Borough Council are currently in the process of undertaking a Detailed Assessment.

Therefore, this report should be read in conjunction with the Updating screening assessment 2009 and the pending Detailed Assessment due to be completed in 2012.

In addition the High Ways Agency has made changes to the M1. As stated earlier in the report the M1 carriageway has been widened between junctions 25 and 28 and there are now speed restrictions on this section of the motorway. This may impact on the areas of potential exceedence and may also have an impact on the current AQMAs. It is not known whether the impact of the widening will be positive or negative but the speed restrictions may reduce air pollution by up to 8%. The Detailed Assessment will assess these issues further.

An initial report by Entec UK Ltd can be seen in Appendix 1. It suggests that the initial results from the automatic monitor have not exceeded the national targets for NO<sub>2</sub>.

### Action Plan Progress

The Action Plan was adopted in 2007 following consultation with stakeholders. It outlines a number of measures aimed at improving air quality in order to work towards the relevant air quality objectives.

**Table 9.1 Action Plan Progress**

| Option Ref | Measure   | Lead authority   | Indicator  | Progress to date   | Progress in last 12 months  | Estimated completion date | Comments relating to emission reductions  |
|------------|---|--|--|--|---|---------------------------|---|
| 6          | Participate in energy efficiency campaigns to encourage industry, business and when replacing equipment to use low emission technology and provide information on granting schemes where appropriate.                     | Erewash Borough Council                                  | Energy Efficiency advice to households; numbers of partnership event contributed to. | Progress highlighted within 2009 Progress report. Continued partnership working with Warm front energy efficiency advice, working with the Primary Care Trust, Community Concern Erewash, Erewash Council for Voluntary Service, Sure start and Amber Valley District Council. | Partnership working with Warm front, Derbyshire PCT and Community Concern. Energy Efficiency advice to 227 households in 2009 and 171 in 2010 including 10 promotional events in 2009 and 17 events in 2010. Warm front figures show that there was 927 referrals in 2009 with a total spend of £1,094,092, and 389 referrals in 2010 with a total spend of £498,002. | Ongoing                   | Will reduce overall concentrations of emissions.<br><br>Will not reduce pollution levels within AQMA. |
| 8-15       | Liaise with the Highways Agency on the proposed scheme to widen the M1 motorway   | Erewash Borough Council<br><br>Highways Agency           | Participation in Highways Agency liaison   | Works on widening the motorway have been completed.  | Works completed   | Complete                  | This may or may not reduce emissions within the AQMA  |
| 18         | Act as a point of information for businesses and major fleet operators, individuals and other stakeholders in Erewash Borough Council for cleaner vehicle technologies, national schemes and grant systems for the use of | Erewash Borough Council<br><br>Derbyshire County Council | Participate in the County Freight Quality Partnership (Derbyshire County Council)    | Ongoing liaison with freight operators   | Ongoing meetings  | Ongoing                   | Potential for emission reductions within AQMA   |

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| Option Ref | Measure  | Lead authority                                       | Indicator   | Progress to date                    | Progress in last 12 months   | Estimated completion date | Comments relating to emission reductions   |
|------------|--|--|---|-------------------------------------|--|---------------------------|--|
|            | alternative fuels.   |  |   |                                     |  |                           |  |
| 21         | Provide training to local authority drivers to minimise emissions  | Erewash Borough Council                              | Driving Efficiencies training scheme  | No training booked at present       | Due to be delivered in the next 12 months.   | Ongoing                   | Unlikely to reduce emissions within AQMA but may reduce Air Quality impact in local areas. |
| 22         | Act as a coordinator/facilitator to encourage local businesses to sign up to a clean vehicle programme.  | Erewash Borough Council                              | Number of businesses improving fleet emissions                                  | None                                | None   | n/a                       | n/a  |
| 24         | Seek Freight Quality Partnerships to include reduction of air quality impact of freight as one the their key objectives                                    | Erewash Borough Council<br>Derbyshire County Council | Participation in County Freight Quality Partnership (Derbyshire County Council) | Ongoing                             | Derbyshire County Council are part of the Derbyshire Freight Quality Partnership. Ongoing discussions but relate more to route choice than reduction   | Ongoing                   | Potential emissions  |
| 26         | Act as a facilitator to freight and public transport operators to encourage maximum take-up of measures in nation programmes for improving fleet emissions | Erewash Borough Council                              | Number of vehicles with improved emission standards                             | Ongoing                             | Further commitments this year to improving fleets.   | Ongoing through LTP       | May help reduce emissions  |
| 30         | Complete the survey of council employee travel patterns and implement a Council Green Travel Plan to maximise opportunities for pedestrians, cycling ,     | Erewash Borough Council<br>Derbyshire County Council | Survey of employee travel patterns  | Erewash Borough Council – completed | Survey now completed. Council green Travel Plan to be developed. The possible options to come from the Green Travel Plan are ideas such as: <ul style="list-style-type: none"> <li>▪ Reducing business miles</li> <li>▪ Reducing meeting miles with the</li> </ul> | Ongoing                   | May help reduce emissions  |

| Option Ref | Measure   | Lead authority   | Indicator                                      | Progress to date                                     | Progress in last 12 months   | Estimated completion date | Comments relating to emission reductions                   |
|------------|---|--|--|--|--|---------------------------|--|
|            | public transport and multiple occupancy journeys  |  |  |  | possibility of video conferencing <ul style="list-style-type: none"> <li>▪ Car Share Scheme</li> <li>▪ Expansion of courier service in car share type scheme between sites.</li> </ul> |                           |  |
| 32         | Raise public and business awareness of existing transport choices and links to health through regular participation in campaigns and events | Derbyshire County Council<br><br>Erewash Borough Council | Number of campaigns                            | Ongoing  | Ongoing  | Ongoing                   | May help reduce localised emissions                        |
| 33         | Maximise access to and quality of road travel and public transport information  | Derbyshire County Council<br><br>Erewash Borough Council | Various indicators within Local Transport Plan | Ongoing progress within Local Transport Plan         | Ongoing  | Ongoing                   | May help reduce localised emissions                        |
| 34         | Extend Green Travel Plan support to all stakeholders  | Derbyshire County Council<br><br>Erewash Borough Council | Numbers of green travel plans implemented      | Ongoing progress mainly by Derbyshire County Council | Business travel plans and School Travel Plans to be implemented  | Ongoing                   | May help reduce localised emissions                        |
| 43         | Maximise possibilities for non-road transport modes for freight (e.g. rail)   | Derbyshire County Council<br><br>Erewash Borough Council | Numbers of HGV movements taken off the roads   | Ongoing  | Minerals being transferred from road to rail.  | Ongoing                   | Could provide an improvement in emissions within the AQMA. |
| 46a        | Develop an air quality strategy for Erewash   | Erewash Borough  | Publication of Strategy                        | A draft strategy was written by                      | No progress  | Unknown                   |  |

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| Option Ref | Measure   | Lead authority                                       | Indicator                        | Progress to date   | Progress in last 12 months  | Estimated completion date   | Comments relating to emission reductions                       |
|------------|---|--|----------------------------------|--|---|---|--|
|            | Borough to assist corporate adoption of air quality issues as a priority, to foster cross departmental working on air quality and to act as a vehicle for dialogue and collaboration with external organisations.                 | Council  |                                  | Bureau Veritas but its publication has been put on hold.                                       |   |   |  |
| 46b        | Develop an integrated assessment tool for the region to allow the air quality impact of transport and land-use developments to be made. Use this tool in the planning process where significant changes in emission are proposed. | Derbyshire County Council                            | Use of assessment tool           | Ongoing implementation of Planning Transport and Land use for the East Midlands Economy model. | Tool models demand between different places but not necessarily which routes to take. | Ongoing use within development control team.                          | Unlikely to be of direct impact on emissions within the AQMAs. |
| 47         | Integrate the Air Quality Action Plan into the Local Transport Plan.  | Erewash Borough Council<br>Derbyshire County Council | N/A                              | Completed  | General improvements through implementation of the Local Transport Plan               | Ongoing liaison on Local Transport Plan issues                        | Unlikely to impact on AQMA                                     |
| 48         | Integrate the AQAP into the Unitary Development Plan, Land Use Plan and Community Plan  | Erewash Borough Council                              | n/a                              | Ongoing  | Ongoing   | Ongoing liaison with planners and policy at development control level | Unlikely to impact on AQMA                                     |
| 49         | Ensure continued use of existing mechanisms including supplementary planning guidance and   | Erewash Borough Council                              | Number of section 106 agreements | Ongoing  | No section 106 agreements in relation to air quality.                                 | Ongoing   | Source of emissions may not be directly reduced using          |



| Option Ref | Measure  | Lead authority                                       | Indicator  | Progress to date  | Progress in last 12 months  | Estimated completion date | Comments relating to emission reductions                                    |
|------------|--|--|--|---|---|---------------------------|---|
|            | section 106 agreements to manage air quality by assessing impact of new development and building best practice material, techniques and mitigation into the design |  |  |   |   |                           | section 106 agreements but may ease or prevent future air quality problems. |
| 50         | Extend Green Travel Plan support to cover the public and private sector operating in the Borough and region.   | Erewash Borough Council<br>Derbyshire County Council | Number of green travel plans implemented   | Ongoing   | No specific progress in this area   | Ongoing                   | May help reduce back ground emissions                                       |
| 53         | Participate in energy efficiency campaigns, encouraging effective insulation and the use of renewable energy.  | Erewash Borough Council                              | Energy efficiency advice and event attended. Planning applications for renewable energy. | Two wind turbine planning applications have been approved. Proactive project to improve energy efficiency in the home via home visits and advice. Events attended | Continuing proactive work   | Ongoing                   | May help reduce back ground emissions                                       |
| 54         | Raise awareness of sustainable waste management practices for use by residents and businesses within the borough   | Erewash Borough Council                              | % of recycling rate  | Ongoing with in waste management  | EBC continues to operate a blue and brown bin scheme to recycle a wide range of plastics, glass, cans and compostable material. | Ongoing                   | May help reduce back ground emissions                                       |
| 55         | Taking Steps to accelerate the take up of cleaner vehicles   | Erewash Borough Council                              | Emissions from Erewash Borough Council Fleet   | Ongoing Improvements  | Round efficiencies and plans to improve driver efficiencies. The fleet is now run on biodiesel.                                 | Ongoing                   | May help reduce back ground emissions                                       |
| 56         | Further prioritising air   | Erewash  | Participation  | Ongoing liaison   | Ongoing liaison with HA reporting   | Is likely to have         |   |

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| Option Ref | Measure   | Lead authority                         | Indicator                                      | Progress to date | Progress in last 12 months   | Estimated completion date  | Comments relating to emission reductions |
|------------|---|--|--|------------------|--|--|--|
|            | quality as a key objective which Highways Agency success is measured where there are AQMAs. | Borough Council<br><br>Highways Agency | in Highways Agency Technical Liaison Committee |                  | out air quality findings and working to improve air quality. The speed restriction on the M1 is one of the recent plans that has been implemented to improve air quality within the AQMAs. | a significant impact and improvement on air quality within the borough, particularly within the AQMAs. |  |

## **10 Conclusions and Proposed Actions**

### **10.1 Conclusions from New Monitoring Data**

Air quality monitoring that was reported within the Updated Screening Assessment 2009 identified areas of NO<sub>2</sub> exceedence at relevant locations within the borough that were not located within the existing AQMAs. These areas where:

- White Lion Square
- Derby Road, Long Eaton
- Bronte Close, Long Eaton

This lead to EBC undertaking a Detailed Assessment that, after an extensive tendering process, commenced in February 2011. This involved making changes to the diffusion tube network and installing an automatic monitor which is to be sited for 12 months.

The exceedence on Bronte Close is due to road traffic from the M1 motorway. The Highways Agency implemented a speed restriction in May 2011 on the M1 carriageway through the borough which is predicted to improve air quality by up to 8%. This may result in significant air quality improvements for the residents of Bronte Close and also at the other sites along the M1 within the AQMAs.

However, there are two further locations that are exceeding the air quality objective for NO<sub>2</sub>. These are:

- White Lion Square
- Derby Road, Long Eaton

These sites are thought to be exceeding due to local road traffic emissions. If, from the Detailed Assessment, it is found that there is a problem at these sites there may need to be further development and liaison with Derbyshire County Council in relation to the Local Transport Plan in order to address the issues.

### **10.2 Proposed Actions**

Erewash Borough Council is currently undertaking a detailed assessment to address the areas that are exceeding NO<sub>2</sub> objectives within the borough that are not currently within identified AQMAs. From the assessment the council will be in position to further comments on any changes to the existing AQMAs and any actions that may be necessary to improve local air quality in specific areas.

Erewash Borough Council will next submit a Detailed Assessment in September 2012.

## **11 References**

Defra, 2009, Local Air Quality Management Technical Guidance LAMQ. TG (09)

Erewash Borough Council, 2009, Air Quality Action Plan Progress Report

Erewash Borough Council, 2009, Air Quality Updating Screening Assessment

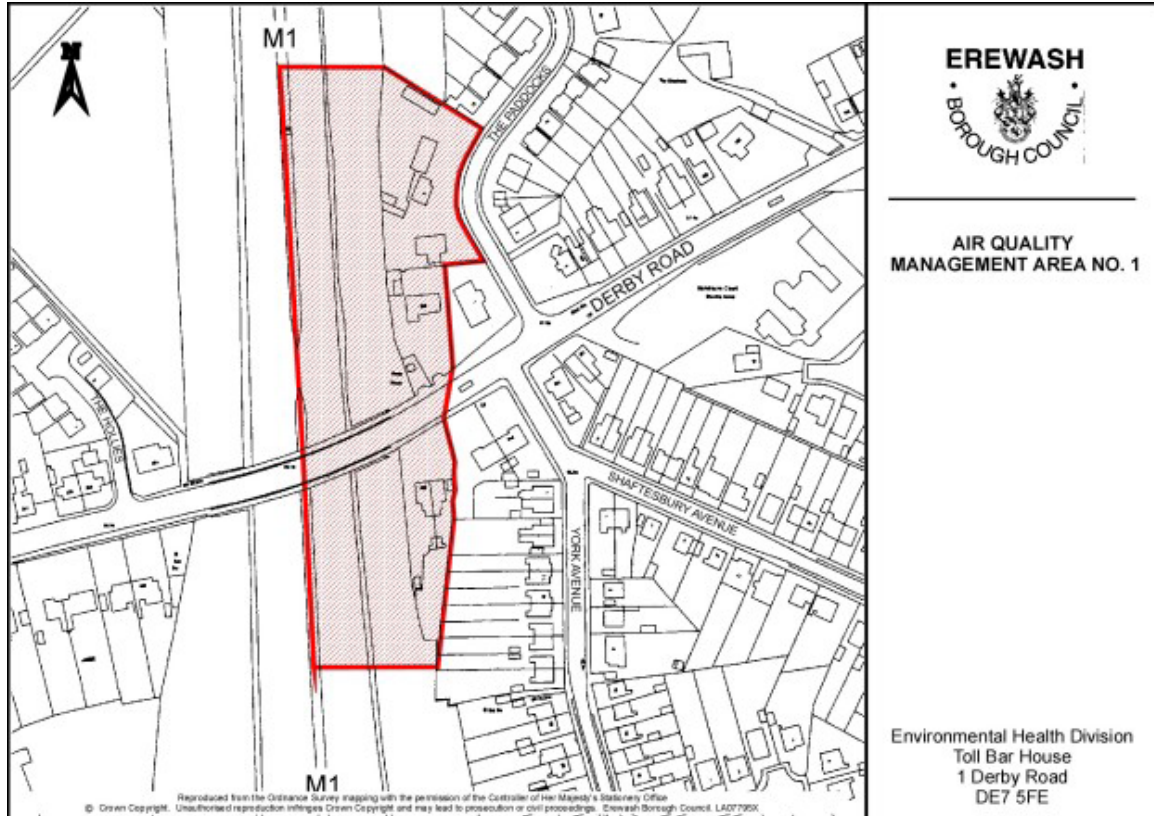
Air Quality Consultants, NO<sub>2</sub> with distance from roads calculator, Defra, Available at:  
<http://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html>



# Appendices

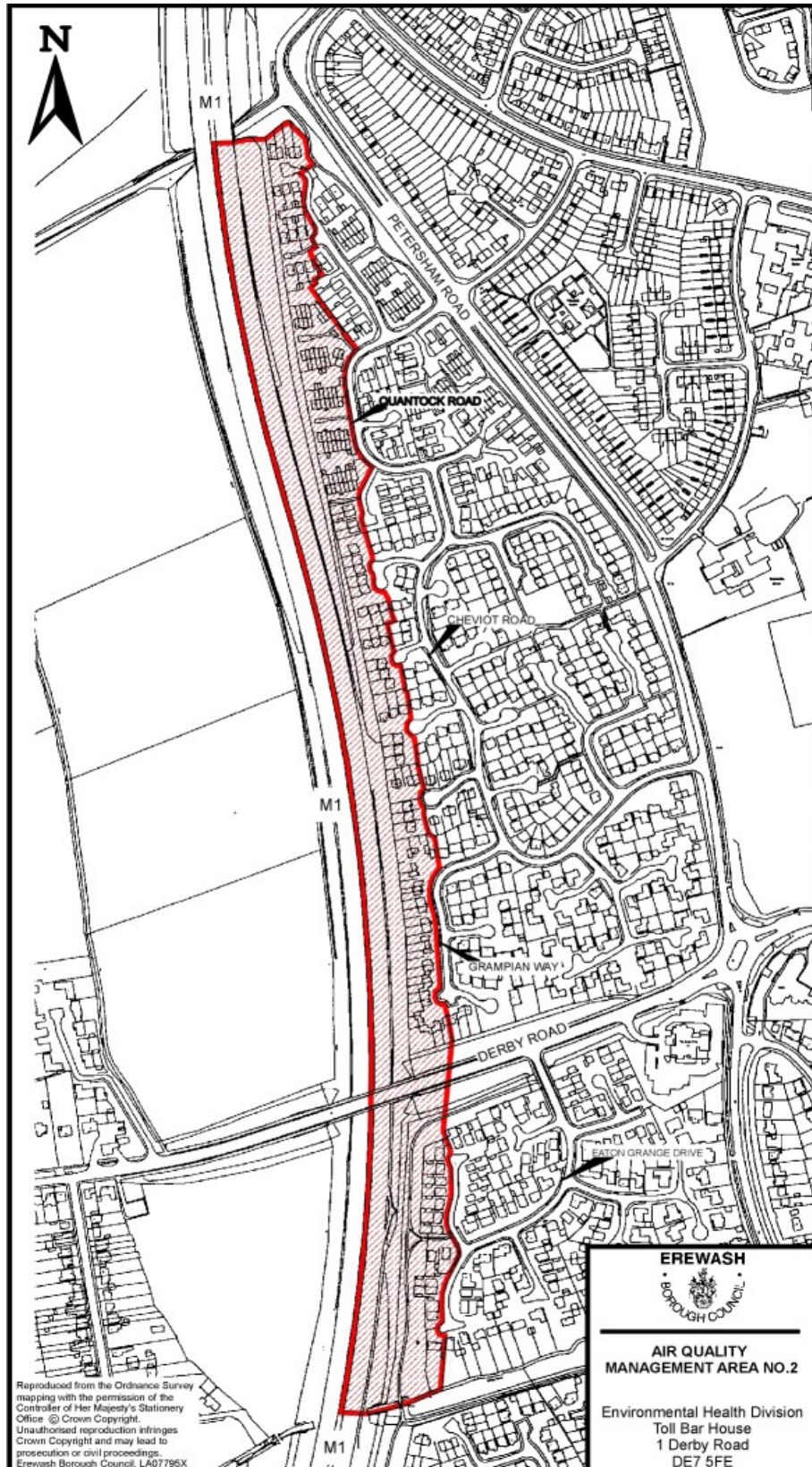
## Appendix 1

### AQMA 1 Sandiacre



Appendix 2

AQMA 2 Long Eaton







## Appendix 3

## Unadjusted Raw Data For 2009

| Tube    | Jan  | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sept | Oct  | Nov  | Dec  |
|---------|------|------|------|------|------|------|------|------|------|------|------|------|
| EBC/1/1 | 84.4 | 75.6 | 59.5 | 63.9 | 47.7 | 60.0 | 70.5 | 59.3 | 57.0 | 72.5 | 70.3 | 75.5 |
| EBC/1/1 | 78.8 | 75.5 | 60.8 | 59.9 | 51.2 | 58.3 | I/S  | 47.2 | I/S  | 71.7 | 69.2 | 71.8 |
| EBC/1/1 | I/S  | 80.5 | 54.0 | 58.3 | 54.6 | 55.8 | I/S  | 64.4 | I/S  | 68.8 | 64.9 | 74.0 |
| EBC/1/2 | 54.3 | 63.8 | 48.1 | 37.7 | 37.1 | 34.3 | 45.7 | 45.9 | 46.4 | 51.0 | 56.5 | 45.9 |
| EBC/1/2 | 55.5 | 63.3 | 46.6 | 37.3 | 41.7 | 36.3 | 46.4 | 45.6 | 46.7 | 51.2 | 56.6 | 49.4 |
| EBC/1/2 | 55.9 | 64.6 | 49.1 | 41.6 | 28.4 | 34.0 | 43.3 | 50.3 | 42.5 | 53.0 | 54.5 | 50.1 |
| EBC/1/3 | 61.8 | 64.0 | 51.7 | 44.2 | 38.9 | 33.9 | 40.1 | 43.9 | 47.4 | 54.0 | 52.8 | 52.7 |
| EBC/1/3 | 53.8 | 65.9 | 54.8 | 43.6 | 37.6 | 35.0 | 47.7 | 45.4 | 45.1 | 48.7 | 51.9 | 52.6 |
| EBC/1/3 | I/S  | 65.3 | 48.5 | 39.7 | 36.9 | 34.8 | 45.9 | 45.3 | 43.9 | 49.3 | 51.9 | 53.5 |
| EBC/1/4 | 55.2 | 67.8 | 49.6 | 36.8 | 33.5 | 31.8 | 45.2 | 41.8 | 43.8 | 49.2 | 56.4 | 45.1 |
| EBC/1/4 | 52.1 | 68.0 | 49.9 | 39.6 | 30.7 | 32.4 | 44.4 | 44.3 | 48.5 | 53.3 | 57.9 | 46.8 |
| EBC/1/4 | 52.9 | 64.7 | I/S  | 38.4 | 32.8 | 27.4 | 41.2 | 49.8 | 48.2 | 51.3 | 67.1 | 51.2 |
| EBC/1/5 | 59.1 | 62.3 | 46.0 | 44.3 | 36.5 | 26.1 | 44.7 | 41.0 | 49.1 | 47.5 | 51.8 | 54.0 |
| EBC/1/5 | 56.2 | 61.1 | 48.1 | 45.5 | 35.8 | 36.5 | 42.3 | 42.3 | 47.8 | 51.8 | 57.1 | 41.3 |
| EBC/1/5 | 39.1 | 59.9 | 42.3 | 40.5 | 40.3 | 34.5 | 42.8 | 46.7 | 48.7 | 53.0 | 54.7 | 54.8 |
| EBC/1/6 | 46.4 | 56.7 | I/S  | I/S  | 2.6  | I/S  | 31.7 | 34.5 | 38.9 | I/S  | 45.6 | 45.6 |
| EBC/1/6 | 49.9 | 59.6 | I/S  | I/S  | I/S  | I/S  | 35.3 | 36.5 | 40.3 | I/S  | 50.5 | 45.7 |
| EBC/1/6 | 25.0 | 59.3 | I/S  | I/S  | I/S  | I/S  | 30.4 | 35.9 | 36.4 | I/S  | 48.9 | 42.7 |
| EBC/1/7 | 45.6 | 33.8 | 19.0 | 29.8 | I/S  | 24.1 | 21.4 | 18.2 | 25.4 | 36.7 | 33.7 | 37.5 |
| EBC/1/7 | 43.0 | 33.3 | 21.6 | 28.7 | 22.1 | 23.8 | 19.6 | 10.5 | 25.4 | 32.9 | 37.5 | 39.4 |
| EBC/1/7 | 47.2 | 34.0 | 22.9 | 26.6 | 22.5 | 24.0 | 20.1 | 17.1 | 27.9 | 34.0 | 32.6 | 38.7 |
| EBC/1/8 | 51.8 | 58.8 | 43.1 | 32.7 | 22.8 | 23.5 | 37.7 | 22.4 | 46.4 | 46.0 | 46.6 | 43.3 |
| EBC/1/8 | 52.5 | 60.8 | 39.7 | 33.2 | 28.8 | 18.3 | 33.2 | 37.8 | 42.3 | 48.8 | 48.2 | 40.4 |
| EBC/1/8 | 48.5 | 59.9 | 40.6 | 34.1 | 31.6 | 27.2 | 37.5 | 37.7 | 41.1 | 42.8 | 49.7 | 51.3 |
| EBC/1/9 | 54.7 | 48.9 | 39.7 | 36.5 | 30.8 | 25.6 | 28.0 | 38.6 | 35.0 | 46.6 | 49.1 | 48.5 |
| EBC/1/9 | 52.2 | 52.8 | 40.4 | 34.8 | 27.1 | 29.5 | 36.0 | 40.9 | 35.9 | 42.4 | 49.7 | 47.6 |
| EBC/1/9 | 53.1 | 47.5 | 36.8 | 35.1 | 26.4 | 25.9 | 34.5 | 39.6 | 37.0 | 44.7 | 46.3 | I/S  |

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|          |      |      |      |      |      |      |      |      |      |      |      |      |
|----------|------|------|------|------|------|------|------|------|------|------|------|------|
| EBC/1/10 | 46.9 | 32.8 | 24.8 | 31.6 | 28.8 | 28.7 | 21.3 | 20.1 | 32.0 | 38.1 | 33.4 | 46.9 |
| EBC/1/10 | 48.0 | 34.3 | 26.8 | 30.4 | 27.1 | 23.2 | 18.9 | 15.7 | 29.5 | 37.2 | 35.1 | 42.0 |
| EBC/1/10 | 47.3 | 35.8 | 26.9 | 30.0 | 13.2 | 28.9 | I/S  | 20.8 | 26.5 | 28.7 | 35.1 | 38.4 |
| EBC/1/11 | 50.4 | 67.6 | 43.3 | 32.0 | 26.1 | 29.3 | 41.9 | 37.0 | 43.1 | 43.3 | 56.6 | 50.7 |
| EBC/1/11 | 45.9 | 60.8 | 41.5 | 29.1 | 30.2 | 31.2 | 40.1 | 43.3 | 43.3 | 50.4 | 54.2 | 48.6 |
| EBC/1/11 | I/S  | 65.0 | 46.0 | 36.7 | 32.9 | 30.1 | 39.4 | 43.3 | 43.4 | 44.1 | 48.8 | 50.0 |
| EBC/1/12 | 57.9 | 53.2 | 41.8 | 38.6 | 35.8 | 40.9 | 38.1 | 13.1 | 45.1 | 50.9 | 49.9 | 49.6 |
| EBC/1/12 | 59.1 | 54.5 | 45.9 | 40.5 | 37.5 | 35.7 | 34.2 | 42.1 | 44.8 | 49.6 | 50.4 | 53.4 |
| EBC/1/12 | 53.4 | 57.2 | 43.8 | 38.3 | 33.7 | 42.8 | 43.2 | 41.0 | 47.9 | 48.5 | 50.8 | 50.2 |
| EBC/1/13 | 51.6 | 59.3 | 45.1 | 35.8 | 33.4 | 36.5 | 34.4 | 35.0 | 42.0 | 50.3 | 52.4 | 56.2 |
| EBC/1/13 | 52.9 | 64.1 | 48.8 | 40.8 | 38.9 | 33.9 | 23.9 | 37.0 | 46.4 | 55.0 | 49.8 | 51.4 |
| EBC/1/13 | 51.9 | 62.2 | 46.4 | 42.3 | 39.4 | 40.1 | 31.6 | I/S  | 45.9 | I/S  | 49.5 | 57.8 |
| EBC/1/14 | 53.9 | 51.5 | 32.4 | 35.9 | 36.7 | 41.2 | 33.4 | 26.8 | 41.9 | 46.5 | 42.5 | 51.9 |
| EBC/1/14 | 56.6 | 48.7 | 39.9 | 37.9 | 34.8 | 41.9 | 33.8 | 27.3 | 41.9 | 51.3 | 45.5 | 54.7 |
| EBC/1/14 | 59.9 | 53.6 | 41.2 | 38.4 | 36.2 | 43.5 | 32.9 | 28.0 | 45.2 | 51.4 | 44.6 | 54.8 |
| EBC/1/15 | 58.1 | 58.4 | 43.3 | 44.8 | 36.1 | 46.5 | 43.3 | 37.2 | 55.0 | 63.2 | 57.4 | 59.0 |
| EBC/1/15 | 61.1 | 65.9 | 46.9 | 45.3 | 38.9 | 45.5 | 43.3 | 34.7 | 54.7 | 62.1 | 50.1 | 56.6 |
| EBC/1/15 | 56.0 | 57.6 | 45.8 | 48.7 | 43.2 | 47.2 | 40.8 | I/S  | 53.7 | 64.5 | 55.0 | 60.1 |
| EBC/1/16 | 48.4 | 35.5 | 26.9 | 28.6 | 43.7 | 28.1 | 23.3 | 17.8 | 29.5 | 40.4 | 42.5 | 46.4 |
| EBC/1/16 | 49.6 | 36.1 | 26.5 | 28.1 | 26.2 | 25.3 | 22.9 | 21.8 | 27.0 | 40.9 | 40.9 | 45.6 |
| EBC/1/16 | 50.8 | 36.1 | 24.0 | 29.6 | 24.7 | 28.2 | 23.2 | 22.5 | 29.5 | 41.7 | 39.5 | 44.9 |
| EBC/1/17 | 50.8 | 39.7 | 31.4 | 30.4 | 24.1 | 31.1 | 24.3 | 26.6 | 33.4 | 44.6 | 44.5 | 45.0 |
| EBC/1/17 | I/S  | 41.9 | 26.9 | 33.5 | 25.1 | 31.7 | 23.6 | 46.4 | 32.0 | 43.7 | 44.9 | 47.1 |
| EBC/1/17 | I/S  | 39.5 | 34.0 | I/S  | 29.5 | 32.0 | 23.8 | 25.7 | 32.0 | 45.2 | 58.1 | I/S  |
| EBC/1/18 | 52.9 | 49.2 | 34.1 | 31.0 | 26.3 | 26.9 | 34.7 | 42.9 | 58.0 | 45.5 | 50.2 | 49.4 |
| EBC/1/18 | 54.1 | 48.2 | 36.4 | 37.3 | 31.4 | 26.1 | 19.0 | 37.2 | 36.6 | 49.3 | 50.1 | 46.7 |
| EBC/1/18 | 52.8 | 48.8 | 38.9 | 38.7 | 25.1 | 27.6 | 37.4 | 40.1 | 34.8 | 50.7 | 50.7 | 45.4 |

Unadjusted Raw Data for 2010

| Tube     | Jan   | Feb  | Mar  | Apr  | May  | Jun  | Jul  | Aug  | Sept | Oct  | Nov  | Dec  |
|----------|-------|------|------|------|------|------|------|------|------|------|------|------|
| EBC/1/1  | 80.1  | 81.1 | 68.4 | 45.6 | 52.5 | 65.4 | 70.5 | 59.3 | 57.0 | 72.5 | 70.3 | 75.5 |
| EBC/1/1  | 85.4  | 85.3 | 59.1 | 52.8 | 61.4 | 70.5 | I/S  | 47.2 | I/S  | 71.7 | 69.2 | 71.8 |
| EBC/1/1  | 75.8  | 71.7 | 70.3 | 52.8 | 63.9 | 67.4 | I/S  | 64.4 | I/S  | 68.8 | 64.9 | 74.0 |
| EBC/1/2  | 59.7  | 55.5 | 49.8 | 38.1 | 35.6 | 42.7 | 45.7 | 45.9 | 46.4 | 51.0 | 56.5 | 45.9 |
| EBC/1/2  | 58.2  | 53.7 | 42.3 | 35.2 | 37.4 | 47.0 | 46.4 | 45.6 | 46.7 | 51.2 | 56.6 | 49.4 |
| EBC/1/2  | 58.4  | 54.6 | 45.6 | 36.0 | 40.2 | 45.2 | 43.3 | 50.3 | 42.5 | 53.0 | 54.5 | 50.1 |
| EBC/1/3  | 51.7  | 54.5 | 48.4 | 39.5 | 38.5 | 44.1 | 40.1 | 43.9 | 47.4 | 54.0 | 52.8 | 52.7 |
| EBC/1/3  | 59.9  | 49.6 | 46.1 | 35.0 | 39.0 | 36.8 | 47.7 | 45.4 | 45.1 | 48.7 | 51.9 | 52.6 |
| EBC/1/3  | 59.4  | 52.4 | 47.4 | 32.9 | 38.2 | 42.7 | 45.9 | 45.3 | 43.9 | 49.3 | 51.9 | 53.5 |
| EBC/1/4  | 58.2  | 48.0 | 43.9 | 37.5 | 37.8 | 43.2 | 45.2 | 41.8 | 43.8 | 49.2 | 56.4 | 45.1 |
| EBC/1/4  | 60.7  | 54.1 | 45.7 | 34.1 | 37.7 | 44.3 | 44.4 | 44.3 | 48.5 | 53.3 | 57.9 | 46.8 |
| EBC/1/4  | 68.2  | 56.9 | 46.5 | I/S  | I/S  | 41.3 | 41.2 | 49.8 | 48.2 | 51.3 | 67.1 | 51.2 |
| EBC/1/5  | 58.7  | 55.8 | 50.4 | 45.2 | 43.1 | 47.8 | 44.7 | 41.0 | 49.1 | 47.5 | 51.8 | 54.0 |
| EBC/1/5  | 57.7  | 59.4 | 47.0 | 41.4 | 45.2 | 47.8 | 42.3 | 42.3 | 47.8 | 51.8 | 57.1 | 41.3 |
| EBC/1/5  | 62.0  | 58.3 | 48.4 | 42.4 | 43.4 | 48.4 | 42.8 | 46.7 | 48.7 | 53.0 | 54.7 | 54.8 |
| EBC/1/6  | 55.5  | 54.4 | 32.3 | 32.9 | 32.4 | 34.3 | 31.7 | 34.5 | 38.9 | I/S  | 45.6 | 45.6 |
| EBC/1/6  | 55.0  | 48.7 | 33.3 | 33.2 | 30.3 | 35.3 | 35.3 | 36.5 | 40.3 | I/S  | 50.5 | 45.7 |
| EBC/1/6  | 55.0  | 53.6 | 34.7 | 35.3 | 32.8 | I/S  | 30.4 | 35.9 | 36.4 | I/S  | 48.9 | 42.7 |
| EBC/1/7  | 43.3  | 47.1 | 30.4 | 20.7 | 23.6 | 23.0 | 21.4 | 18.2 | 25.4 | 36.7 | 33.7 | 37.5 |
| EBC/1/7  | 45.5  | 46.9 | 30.1 | 20.3 | 24.3 | 25.0 | 19.6 | 10.5 | 25.4 | 32.9 | 37.5 | 39.4 |
| EBC/1/7  | 40.5  | 48.1 | 28.2 | 15.6 | 23.0 | 24.4 | 20.1 | 17.1 | 27.9 | 34.0 | 32.6 | 38.7 |
| EBC/1/8  | 58.7  | 55.8 | 39.5 | 34.1 | 31.0 | 30.6 | 37.7 | 22.4 | 46.4 | 46.0 | 46.6 | 43.3 |
| EBC/1/8  | 136.6 | 56.4 | 39.3 | 33.6 | 32.5 | 36.7 | 33.2 | 37.8 | 42.3 | 48.8 | 48.2 | 40.4 |
| EBC/1/8  | 58.9  | 55.0 | 35.9 | 34.8 | 32.6 | 36.0 | 37.5 | 37.7 | 41.1 | 42.8 | 49.7 | 51.3 |
| EBC/1/9  | 46.9  | 48.7 | 41.1 | 29.5 | 29.7 | 29.9 | 28.0 | 38.6 | 35.0 | 46.6 | 49.1 | 48.5 |
| EBC/1/9  | 51.4  | 47.8 | 40.8 | 26.6 | 28.8 | 30.1 | 36.0 | 40.9 | 35.9 | 42.4 | 49.7 | 47.6 |
| EBC/1/9  | 55.4  | 47.5 | 40.4 | 29.3 | 27.1 | 17.3 | 34.5 | 39.6 | 37.0 | 44.7 | 46.3 | I/S  |
| EBC/1/10 | 46.1  | 50.6 | 31.2 | 26.6 | 28.6 | 28.4 | 21.3 | 20.1 | 32.0 | 38.1 | 33.4 | 46.9 |
| EBC/1/10 | 46.7  | 52.1 | 31.8 | 25.1 | 26.5 | 27.7 | 18.9 | 15.7 | 29.5 | 37.2 | 35.1 | 42.0 |

Date July 2011

## Erewash Borough Council - England

|          |      |      |      |      |      |      |      |      |      |      |      |      |
|----------|------|------|------|------|------|------|------|------|------|------|------|------|
| EBC/1/10 | 47.3 | 53.8 | 35.3 | 25.3 | I/S  | 28.2 | I/S  | 20.8 | 26.5 | 28.7 | 35.1 | 38.4 |
| EBC/1/11 | 56.6 | 55.9 | 37.0 | 34.4 | 33.9 | 38.2 | 41.9 | 37.0 | 43.1 | 43.3 | 56.6 | 50.7 |
| EBC/1/11 | 61.0 | 53.8 | 41.9 | 39.5 | 31.5 | 41.2 | 40.1 | 43.3 | 43.3 | 50.4 | 54.2 | 48.6 |
| EBC/1/11 | 61.2 | 53.1 | 37.5 | 32.6 | 31.9 | 35.1 | 39.4 | 43.3 | 43.4 | 44.1 | 48.8 | 50.0 |
| EBC/1/12 | 69.2 | 57.1 | 39.9 | 41.4 | 38.9 | 40.9 | 38.1 | 13.1 | 45.1 | 50.9 | 49.9 | 49.6 |
| EBC/1/12 | 65.5 | 60.3 | 42.9 | 40.0 | 40.6 | 44.1 | 34.2 | 42.1 | 44.8 | 49.6 | 50.4 | 53.4 |
| EBC/1/12 | 63.7 | 60.2 | 42.2 | 41.4 | 39.7 | 44.9 | 43.2 | 41.0 | 47.9 | 48.5 | 50.8 | 50.2 |
| EBC/1/13 | 67.4 | 58.0 | 41.8 | 32.0 | 39.5 | 41.7 | 34.4 | 35.0 | 42.0 | 50.3 | 52.4 | 56.2 |
| EBC/1/13 | 70.6 | 60.2 | 38.9 | 31.6 | 41.9 | 41.3 | 23.9 | 37.0 | 46.4 | 55.0 | 49.8 | 51.4 |
| EBC/1/13 | 67.6 | 67.4 | 46.4 | 30.4 | 38.3 | 39.2 | 31.6 | I/S  | 45.9 | I/S  | 49.5 | 57.8 |
| EBC/1/14 | 60.7 | I/S  | 40.1 | 38.4 | 40.9 | 44.2 | 33.4 | 26.8 | 41.9 | 46.5 | 42.5 | 51.9 |
| EBC/1/14 | 63.1 | I/S  | 39.1 | 35.3 | 43.9 | 42.3 | 33.8 | 27.3 | 41.9 | 51.3 | 45.5 | 54.7 |
| EBC/1/14 | 64.0 | I/S  | 39.0 | 38.8 | 41.8 | 45.1 | 32.9 | 28.0 | 45.2 | 51.4 | 44.6 | 54.8 |
| EBC/1/15 | 67.7 | 67.9 | 41.9 | 45.5 | 52.2 | 51.5 | 43.3 | 37.2 | 55.0 | 63.2 | 57.4 | 59.0 |
| EBC/1/15 | 65.5 | 71.1 | 41.6 | 45.0 | 47.4 | 51.2 | 43.3 | 34.7 | 54.7 | 62.1 | 50.1 | 56.6 |
| EBC/1/15 | 70.9 | 67.5 | 42.8 | 46.0 | 46.5 | 50.6 | 40.8 | I/S  | 53.7 | 64.5 | 55.0 | 60.1 |
| EBC/1/16 | 46.5 | 43.3 | 30.9 | 24.5 | 29.7 | 30.0 | 23.3 | 17.8 | 29.5 | 40.4 | 42.5 | 46.4 |
| EBC/1/16 | 48.3 | 46.5 | 31.8 | 23.4 | 30.1 | 29.2 | 22.9 | 21.8 | 27.0 | 40.9 | 40.9 | 45.6 |
| EBC/1/16 | 45.2 | 43.5 | 29.4 | 26.2 | 29.7 | 28.9 | 23.2 | 22.5 | 29.5 | 41.7 | 39.5 | 44.9 |
| EBC/1/17 | 41.4 | 47.2 | 31.1 | 28.4 | 30.8 | 30.6 | 24.3 | 26.6 | 33.4 | 44.6 | 44.5 | 45.0 |
| EBC/1/17 | 52.3 | 48.6 | 29.2 | 25.3 | 31.3 | 30.8 | 23.6 | 46.4 | 32.0 | 43.7 | 44.9 | 47.1 |
| EBC/1/17 | 51.7 | 45.8 | 29.2 | 26.3 | 30.5 | 31.8 | 23.8 | 25.7 | 32.0 | 45.2 | 58.1 | I/S  |
| EBC/1/18 | 49.6 | 49.8 | 38.2 | 33.2 | 30.7 | 32.6 | 34.7 | 42.9 | 58.0 | 45.5 | 50.2 | 49.4 |
| EBC/1/18 | 52.4 | 49.9 | 39.8 | 29.5 | 26.4 | 34.0 | 19.0 | 37.2 | 36.6 | 49.3 | 50.1 | 46.7 |
| EBC/1/18 | 57.6 | 49.6 | 38.2 | 36.0 | 30.7 | 33.9 | 37.4 | 40.1 | 34.8 | 50.7 | 50.7 | 45.4 |

