Annual Progress Report (APR)

2016 Air Quality Annual Progress Report (APR) for
Scottish Borders Council

In fulfilment of Part IV of the
Environment Act 1995

Local Air Quality Management

June 2016

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Executive Summary: Air Quality in Our Area

Air Quality in the Scottish Borders

1.1 Scottish Borders Council undertakes a program of Air Quality Assessment in accordance with the Guidance produced by the UK Government and Devolved Administrations(1). Reports have been produced annually on a rolling program. Earlier rounds of review and assessment have shown that the main industrial pollutants are unlikely to exceed the UK Air Quality Objectives at any location within the Council's area. And that only NO2 from road traffic and PM10 from domestic fuel consumption still required to be considered.

1.2 Subsequent work(2) has indicated that there were no areas in the Borders at risk of exceeding any of the listed pollutants.

1.3 The new data and information collected for this report confirms the conclusions of previous reports and that a Detailed Assessment is not required for any pollutant.

Actions to Improve Air Quality

Scottish Borders Council is not currently engaged in any active air quality initiatives other than ongoing monitoring.

Local Priorities and Challenges

Scottish Borders Council has no specific priorities or challenges for the coming year beyond the statutory monitoring and reporting requirements.

How to Get Involved

The Scottish Borders Council is in the process of preparing a web page dedicated to air quality matters.

This will provide information to members of the public on statutory and non-statutory air quality issues.

Contact details will be provided for persons who require further advice and information.

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2. Local Air Quality Management

This report provides an overview of air quality in the Scottish Borders during 2015. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995) 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 an exceedance is considered likely the local authority must 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. This Annual Progress Report (APR) is summarises the work being undertaken by Scottish Borders Council to improve air quality and any progress that has been made.

Table 2.1 – Summary of Air Quality Objectives in Scotland

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Nitrogen dioxide (NO_2)	200 µg/m^3 not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 µg/m^3	Annual mean	31.12.2005
Particulate Matter (PM_{10})	50 µg/m^3, not to be exceeded more than 7 times a year	24-hour mean	31.12.2010
	18 µg/m^3	Annual mean	31.12.2010
Particulate Matter ($PM_{2.5}$)	10 µg/m^3	Annual mean	31.12.2020
Sulphur dioxide (SO_2)	350 µg/m^3, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
	125 µg/m^3, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 µg/m^3, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005
Benzene	3.25 µg/m^3	Running annual mean	31.12.2010
1,3 Butadiene	2.25 µg/m^3	Running annual mean	31.12.2003
Carbon Monoxide	10.0 mg/m^3	Running 8-Hour mean	31.12.2003
Lead	0.25 µg/m^3	Annual Mean	31.12.2008

3. Actions to Improve Air Quality

3.1 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority must prepare an Air Quality Action Plan (AQAP) within 12 months, setting out measures it intends to put in place in pursuit of the objectives.

Scottish Borders Council currently does not have any AQMAs. Previous rounds of Review and Assessment have shown that AQMAs are unnecessary in the Council's area.

3.2 Local Transport Plan

Scottish Borders Council has produced a Local Access and Transport Strategy. This can be accessed from -

https://www.scotborders.gov.uk/site/scripts/google_results.php?q=air+quality+strategy

The Council has also produced a Low Carbon Strategy which can be accessed from -

https://www.scotborders.gov.uk/download/downloads/id/1668/scottish_borders_low_carbon_economic_strategy.pdf

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4. Air Quality Monitoring Data and Comparison with Air Quality Objectives

4.1 Summary of Monitoring Undertaken

4.1.1 Automatic Monitoring Sites

This section sets out what monitoring has taken place and how local concentrations of the main air pollutants compare with the objectives.

Scottish Borders Council undertook automatic (continuous) monitoring at one site during 2015. Table A.1 in Appendix A shows the details of the sites. National monitoring results are available at http://www.scottishairquality.co.uk/ .

A maps showing the location of the monitoring site is provided at Fig 4.1 below. Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C.

4.1.2 Non-Automatic Monitoring Sites

Scottish Borders Council undertook non- automatic (passive) monitoring of NO_2 at 14 sites during 2015. Table A.2 in Appendix A shows the details of the sites.

Maps showing the location of the monitoring site are provided in Appendix D.

Further details on Quality Assurance/Quality Control (QA/QC) and bias adjustment for the diffusion tubes are included in Appendix C.

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Figure 4.1 Map of Automatic Monitoring Site

4.2 Individual pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for annualisation and bias. Further details on adjustments are provided in Appendix C.

4.2.1 Nitrogen Dioxide (NO_2)

Table A.3 in Appendix A compares the ratified and adjusted monitored NO_2 annual mean concentrations for the past 5 years with the air quality objective of 40µg/m^3.

For diffusion tubes, the full 2015 dataset of monthly mean values is provided in Appendix B.

Table A.4 in Appendix A compares the ratified continuous monitored NO_2 hourly mean concentrations for the past 5 years with the air quality objective of 200µg/m^3, not to be exceeded more than 18 times per year.

There have been no exceedences of the Objectives to date.

4.2.2 Particulate Matter (PM_{10})

Previous rounds of Review and Assessment have indicated that no site in the Scottish Borders is a risk of exceeding the air quality objectives for particulate matter.

4.2.3 Particulate Matter ($PM_{2.5}$)

Using data from the maps produced by Air Quality Scotland(3) and applying the adjustment factor detailed at 7.109 in TG(16)(4) no areas within the Council's boundaries are predicted to exceed the Objective for $PM_{2.5}$.

Scottish Borders Council therefore has no plans to undertake monitoring for this pollutant.

4.2.4 Sulphur Dioxide (SO_2)

4.2.5 Scottish Borders Council does not undertake monitoring for SO_2.

4.2.6 Carbon Monoxide, Lead and 1,3-Butadiene

Scottish Borders Council has not undertaken monitoring for Carbon Monoxide, Lead and 1,3-Butadiene.

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5. New Local Developments

No new developments which might impact on local air quality have been identified.

5.1 Road Traffic Sources

No new Road Traffic sources have been identified.

4.2 Other Transport Sources

No new Other Traffic sources have been identified.

4.3 Industrial Sources

No new industrial sources have been identified.

4.4 Commercial and Domestic Sources

A number of Planning Applications have been received in respect of new biomass stoves and boilers.

These have been screened using the Screening Tool and none have been identified as posing a risk to local air quality.

4.5 New Developments with Fugitive or Uncontrolled Sources

During 2015 a Planning Application was lodged in respect of the undernoted –

Edston Quarry Peebles

Extension to Quarry to enable widening of internal access haul road

Scrutiny of the documents associated with this Application, together with the local site conditions indicate that it will not be a significant source of fugitive particulate matter.

6. Planning Applications

No planning Applications have been identified which may impact on local air quality.

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7. Conclusions and Proposed Actions

7.1 Conclusions from New Monitoring Data

The monitoring undertaken by Scottish Borders Council has not identified any potential or actual exceedances of the Air Quality Objectives at any relevant locations.

7.2 Conclusions relating to New Local Developments

Scottish Borders Council has not identified any new local developments that require more detailed consideration in the next Updating and Screening Assessment.

7.3 Proposed Actions

The new monitoring data collected by Scottish Borders Council during the year has not identified the need to proceed to a Detailed Assessment for any pollutant.

At the time of writing, the Council has not identified the need to undertake any additional monitoring.

Review and assessment work will continue towards production of the Council's next Report in 2017.

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Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Inlet Height (m)
CM1	Peebles	Urban background	324812	641083	O_3 / NOx	N	UV Absorption /Chemiluminescent	N/A	N/A	2.8

(1) 0 if the monitoring site is at a location of exposure (e.g. installed on the façade of a residential property).

(2) N/A if not applicable.

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Table A.2 – Details of Non-Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube collocated with a Continuous Analyser?
DT1	Council Chamber, Galashiels	Kerbside	349298	635928	NO_2	N	1	2	N
DT2	Stanley / Meigle St., Galashiels	Urban Background	348587	636142	NO_2	N	1	1	N
DT3	High St., Galashiels	Kerbside	348953	636445	NO_2	N	1	1.5	N
DT4	Sandbed, Hawick	Kerbside	350106	614464	NO_2	N	1	3	N
DT5	High St., Hawick	Kerbside	350314	614631	NO_2	N	1	1.5	N
DT6	Renwick Ter., Hawick	Urban Background	349803	613961	NO_2	N	1	1.5	N
DT7	Silverbuthall Rd., Hawick	Urban Background	350526	615857	NO_2	N	1	1.5	N
DT8	Bourtree Pl., Hawick	Kerbside	350497	614888	NO_2	N	1	1.5	N
DT9	Mart St., Hawick	Kerbside	350501	615096	NO_2	N	1	3	N
DT10	Commercial Rd., Hawick	Kerbside	350222	614899	NO_2	N	1	2	N

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube collocated with a Continuous Analyser?
DT11	Rogerson's High St Galashiels	Kerbside	349063	636287	NO_2	N	1	1.5	N
DT12	Border Angling, High St, Galashiels	Kerbside	348976	636371	NO_2	N	1	1.5	N
DT13	Edingtons, High St, Galashiels	Kerbside	348982	636384	NO_2	N	1	1.5	N
DT14	Iceland, High St, Galashiels	Kerbside	349063	636272	NO_2	N	1	1.5	N

(1) 0 if the monitoring site is at a location of exposure (e.g. installed on/adjacent to the façade of a residential property).

(2) N/A if not applicable.

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Table A.3 – Annual Mean NO_2 Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2015 (%) (2)	NO_2 Annual Mean Concentration (µg/m^3) (3)				
					2011	2012	2013	2014	2015
CM1	Urban Background	Automatic	N/A	90	7	8	Poor Data Capt.	6	6
DT1	Kerbside	Diffusion Tube	N/A	100	15	14	11	12	10
DT2	Urban B.Gound	Diffusion Tube	N/A	100	10	10	7	7	7
DT3	Kerbside	Diffusion Tube	N/A		38	35			
DT4	Kerbside	Diffusion Tube	N/A	100	25	21	19	16	16
DT5	Kerbside	Diffusion Tube	N/A	100	22	21	19	17	20
DT6	Urban B.Gound	Diffusion Tube	N/A	100	8	8	6	6	6
DT7	Urban B.Gound	Diffusion Tube	N/A	100	9	8	6	6	7
DT8	Kerbside	Diffusion Tube	N/A	75	23	23	19	18	18
DT9	Kerbside	Diffusion Tube	N/A	91	18	18	17	17	15
DT10	Kerbside	Diffusion Tube	N/A	100			15	15	15
DT11	Kerbside	Diffusion Tube	N/A	91	32	28	18	19	17
DT12	Kerbside	Diffusion Tube	N/A	100	39	32	23	25	22
DT13	Kerbside	Diffusion Tube	N/A	100	31	29	21	23	20
DT14	Kerbside	Diffusion Tube	N/A	91	37	30	23	25	23

Notes: Exceedances of the NO_2 annual mean objective of 40µg/m3 are shown in **bold**.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedence of the NO_2 1-hour mean objective are shown in **bold and underlined.**

(1) data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per LAQM.TG(16) if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Table A.4 – 1-Hour Mean NO_2 Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2015 (%) (2)	NO_2 1-Hour Means > 200µg/m^3 (3)				
					2011	2012	2013	2014	2015
CM1	Urban Background	Automatic		90	67	59	No Data	52	63

Notes: Exceedances of the NO_2 1-hour mean objective (200µg/m^3 not to be exceeded more than 18 times/year) are shown in **bold.**

(1) data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) If the period of valid data is less than 90%, the 99.8th percentile of 1-hour means is provided in brackets.

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Appendix B: Full Monthly Diffusion Tube Results for 2015

Table B.1 – NO_2 Monthly Diffusion Tube Results for 2015

Site ID	NO_2 Mean Concentrations (µg/m^3)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean	
													Raw Data	Bias Adjusted (1)
DT1	16.3	13.7	10.7	10.5	9.8	7.4	8.5	9.9	11.8	16.2	14.9	15.2	12	10
DT2	11	10.5	9	8	6.7	5.1	5.4	6.6	7.9	12.4	12.2	8	9	7
DT3														
DT4	24.7	21.4	20.1	20.1	14.8	13.9	16.6	17.5	18.2	23.9	26.8	26.2	20	16
DT5	28.5	39.5	21.6	25.2	21.9	18.9	20.1	20.4	22.9	25.7	30.3	24.9	25	20
DT6	9.6	8.5	8	5.7	5	3.7	4.6	5.2	7.3	8.1	9.7	8.6	7	6
DT7	13.1	8.2	8.8	7.1	5.7	4.3	5.6	6	7.5	10.1	10.3	9.9	8	7
DT8	31.4	23.3	23	22.6	20.4	14.4	16.2	21.2	21.6	26.3	28.8	23.6	23	18
DT9		24.6	17.3	19.2	15.7	13.6	16.8	18.5	19.8	21.7	22.7	20.4	19	15

Site ID	NO_2 Mean Concentrations (µg/m^3)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean	
													Raw Data	Bias Adjusted (1)
DT10	24.2	20.5	20.7	18.2	14.4	13.4	15.4	18.2	16.9	27	21.4	19.1	19	15
DT11	25.7	24.9	20.3	20.5	17.2	13.5	18.6	17.9	22.2	27.8	24	19	21	17
DT12	31.6	23.4	24.6	27.9	28.2	21.6	22.5	27.3	30.6	34.3	28.1	31	28	22
DT13	26.7	16.7	26.4	24.5	26.4	18	24	22.9	30.6	29.1	24.4	24.8	25	20
DT14	36.9	20	29.6	28.1	27.8	21	25	29.2		28.2	35.9	33.9	29	23

(1) See Appendix C for details on bias adjustment

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Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC

Diffusion Tube Bias Adjustment Factors

The Laboratory used for the analysis of the Councils diffusion tubes was Edinburgh Scientific Services.
The laboratory uses the analytical method of 50% TEA in Acetone.
Over the year Edinburgh Scientific Services participated in three co-location studies and tube precision was rated as “Good”.

A bias adjustment figure of 0.81 has been used for the results of this laboratory. Spreadsheet Version 03/16.

Diffusion Tube Bias Adjustment Factors

Bias and precision factors have been obtained from the spreadsheet tool V 3/16 on the Review and Assessment website.

Factor from Local Co-location Studies (if available)

Scottish Borders Council has not carried out any co-location studies.

Discussion of Choice of Factor to Use

Not Applicable.

PM Monitoring Adjustment

Not Applicable.

Short-term to Long-term Data adjustment

Not Applicable.

QA/QC of automatic monitoring

The QA/QC work on the Peebles site is carried out under the auspices of the Automatic Urban and Rural Network system. Routine calibrations are undertaken every four weeks by Council Staff as Local Site Operatives.

Data validation and ratification is undertaken by Bureau Veritas, Contractors appointed by DEFRA/Scottish Government.

Site audits are undertaken at regular intervals by AEA Technology and to date, and other than poor data capture in 2013, no overall issues have been identified.

QA/QC of diffusion tube monitoring

The laboratory used during 2015 for the Council's diffusion tube monitoring data follows the procedures set out in the Harmonisation Practical Guidance as recommended in LAQM.TG(09).

All diffusion tubes used by the Council are mounted and handled in accordance with the guidance contained in LAQM TG(09). Sites have been selected in consultation with the Scottish Government and SEPA to be representative of human exposure.

Tubes are exposed for periods in accordance with the published annual calendar of exposure dates.

Over the year Edinburgh Scientific Services participated in three co-location studies.

Tube precision as given on the spreadsheet was rated as "Good" for all of these studies.

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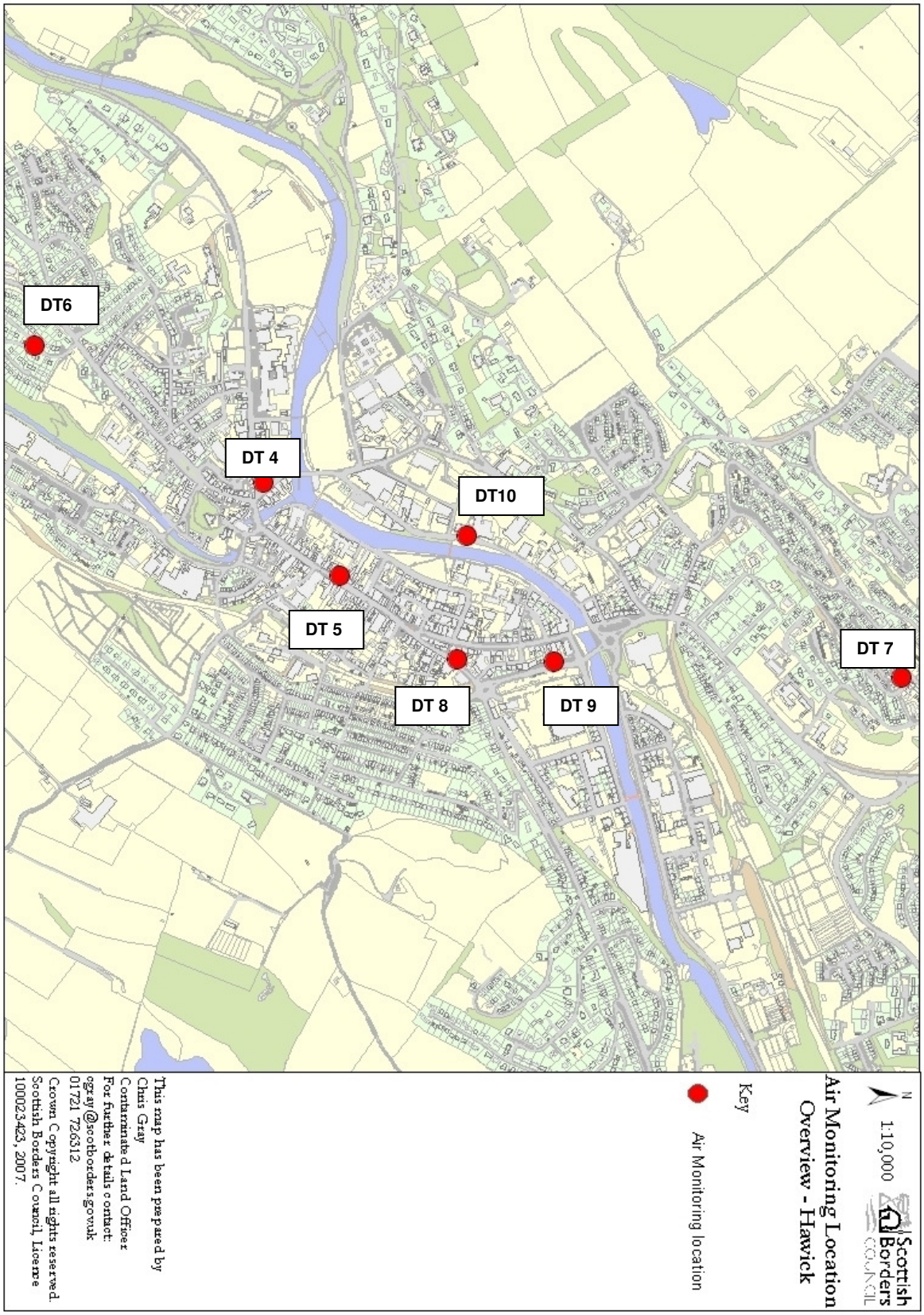
Appendix D: Maps of Diffusion Tube Sites



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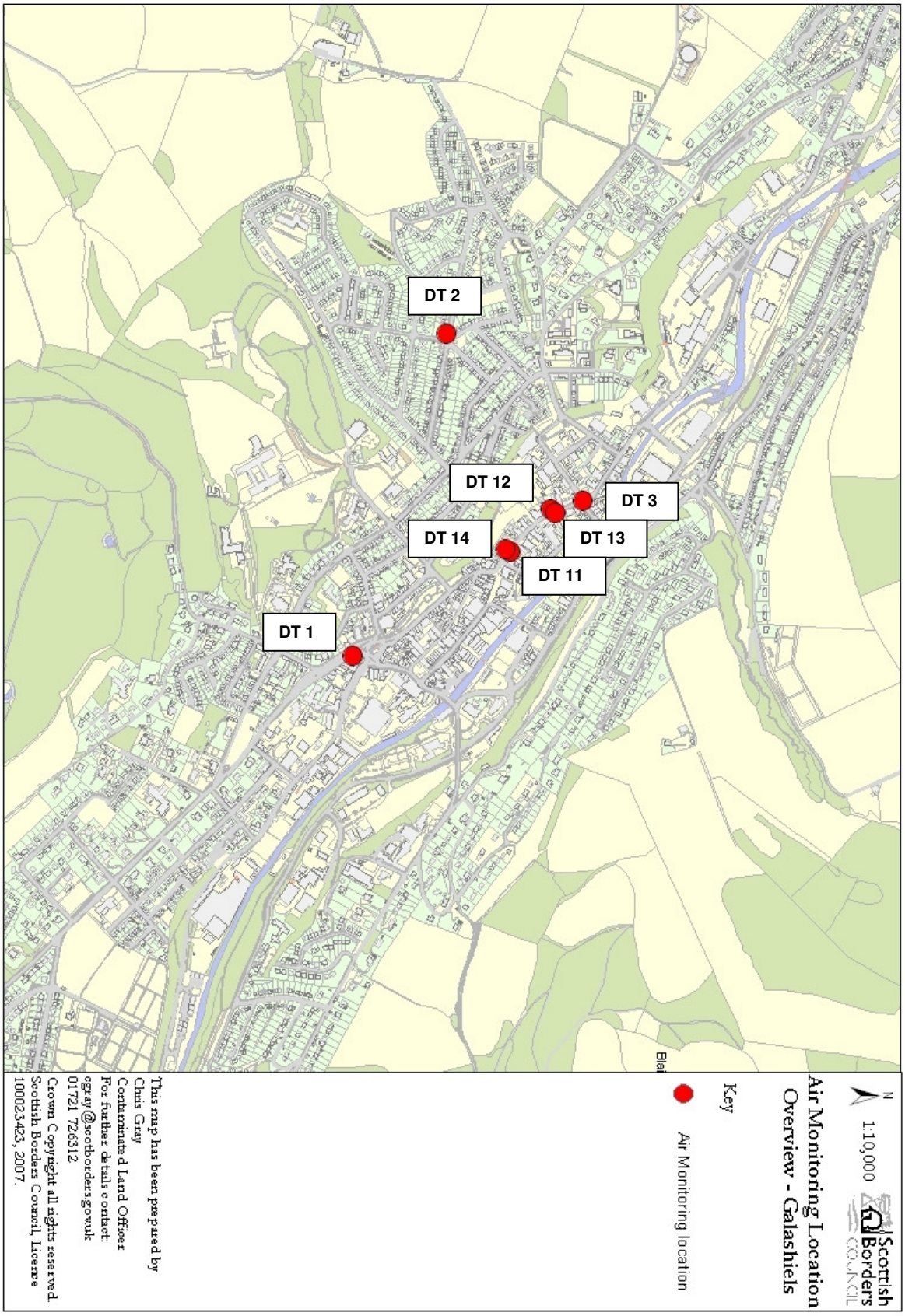
DT 2
DT 12
DT 3
DT 14
DT 13
DT 11
DT 1
Air Monitoring Location
Overview - Galashiels
Key
Air Monitoring location
1:10,000
Scottish Borders Council
This map has been prepared by
Chris Gray
Contaminated Land Officer
For further details contact:
cgray@scotborders.gov.uk
01721 726312
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100023423, 2007.

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Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the LA intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
APR	Air quality Annual Progress Report
AURN	Automatic Urban and Rural Network (UK air quality monitoring network)
Defra	Department for Environment, Food and Rural Affairs
LAQM	Local Air Quality Management
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO_2	Sulphur Dioxide

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References

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

2). 2015 Updating and Screening Assessment for Scottish Borders Council – SBC/USA/2015/1

3). http://www.scottishairquality.co.uk/data/mapping?view=pm10

4). Local Air Quality Management Technical Guidance LAQM.TG(16) http://laqm.defra.gov.uk/technical-guidance/

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