The Highland Council
Local Air Quality Progress Report 2007

TEC Services
September, 2007

1 Executive Summary

Part IV of the Environment Act 1995 introduced Local Air Quality Management, whereby local authorities have a statutory duty to carry out reviews and assessments of local air quality from time to time. Local Air Quality Management has an important role in helping to deliver the air quality objectives which are set out in the Air Quality Strategy for England, Scotland, Wales and Northern Ireland (January 2000) and the Air Quality (Scotland) Regulations 2000 (as amended).

The Highland Council is required to undertake a review and assessment of local air quality by the end of April 2007. The purpose of this report is to update the findings of previous reports and to assess whether any of the Air Quality Objectives are at risk of being exceeded in Highland in the coming years up to 2010.

There are seven pollutants which each local authority must assess. The assessment is carried out having regard to the directions in the Local Air Quality Management Progress Report Guidance LAQM.PRG(03).

Where an updating and screening assessment identifies a risk that an air quality objective will be exceeded at a location with relevant exposure, the local authority will be required to undertake a Detailed Assessment following the directions in Local Air Quality Management Technical Guidance LAQM. TG(03). The aim of a Detailed Assessment is to identify with reasonable certainty whether or not an Air Quality Objective will be exceeded. If a risk of failure to achieve the Air Quality Objectives is identified in a local authority area the local authority must declare an Air Quality Management Area and produce an Action Plan for that area.

The main findings of this Review and Assessment are as follows:

- Monitoring results at the Telford Street AUN site for PM10 in 2006 were significantly higher than in previous years. Further assessment will demonstrate whether this is a long or short term trend.
- Monitoring and Modelling is being undertaken by The Highland Council with respect to Ord Maltings, to determine whether or not there is a risk of failure to comply with the air quality objectives because of emissions from this source.
- All other monitoring results and information available indicate compliance with the Air Quality Objectives is likely.

2 Introduction

The UK Government published its strategic policy framework for air quality management in 1995 establishing national strategies and policies on air quality which culminated in the Environment Act 1995. The Air Quality Strategy provides a framework for air quality control through air quality standards and air quality management. These air quality standards and their objectives have been enacted through the Air Quality Regulations in 1997, 2000 and 2002. The Environment Act 1995 requires Local Authorities to undertake air quality reviews. In areas where an air quality objective is not anticipated to be met, Local Authorities are required to establish Air Quality Management Areas and implement action plans to improve air quality.

3 Progress Reports

Local Air Quality management places a requirement on a local authority to regularly review and assess local air quality and periodically submit reports on the review and assessment process. An Updating and Screening Assessment (USA) Report is required every three years.

The last USA Report was required in 2006 and another will be expected in 2009.

If a local authority is not required to proceed to Detailed Assessment following the USA a Progress Report must be published for each of the next two years, thereby ensuring continuity in the review and assessment process.

Highland Council published an Updating and Screening Assessment in 2006. The assessment concluded that there was no likelihood of a failure to achieve objectives and no requirement to proceed to a detailed assessment in the Highland Council Area. The Highland Council must therefore submit a Progress Report by the end of April 2007.

This Progress Report has regard to the requirements and recommendations of the Scottish Executive document LAQM.PRG(03) – Progress Report Guidance.

The aims of Progress Reports are to:

- report progress on implementing local air quality management; and
- report progress in maintaining concentrations below the air quality objectives.

This Progress Report provides information regarding:

- new monitoring results; and
- new local developments that might affect local air quality

4 Air Quality Objectives

Objectives included in the Air Quality (Scotland) Regulations 2000 and (Amendment) Regulations 2002 for the purpose of Local Air Quality Management are outlined in Figure 1 Air Quality Objectives

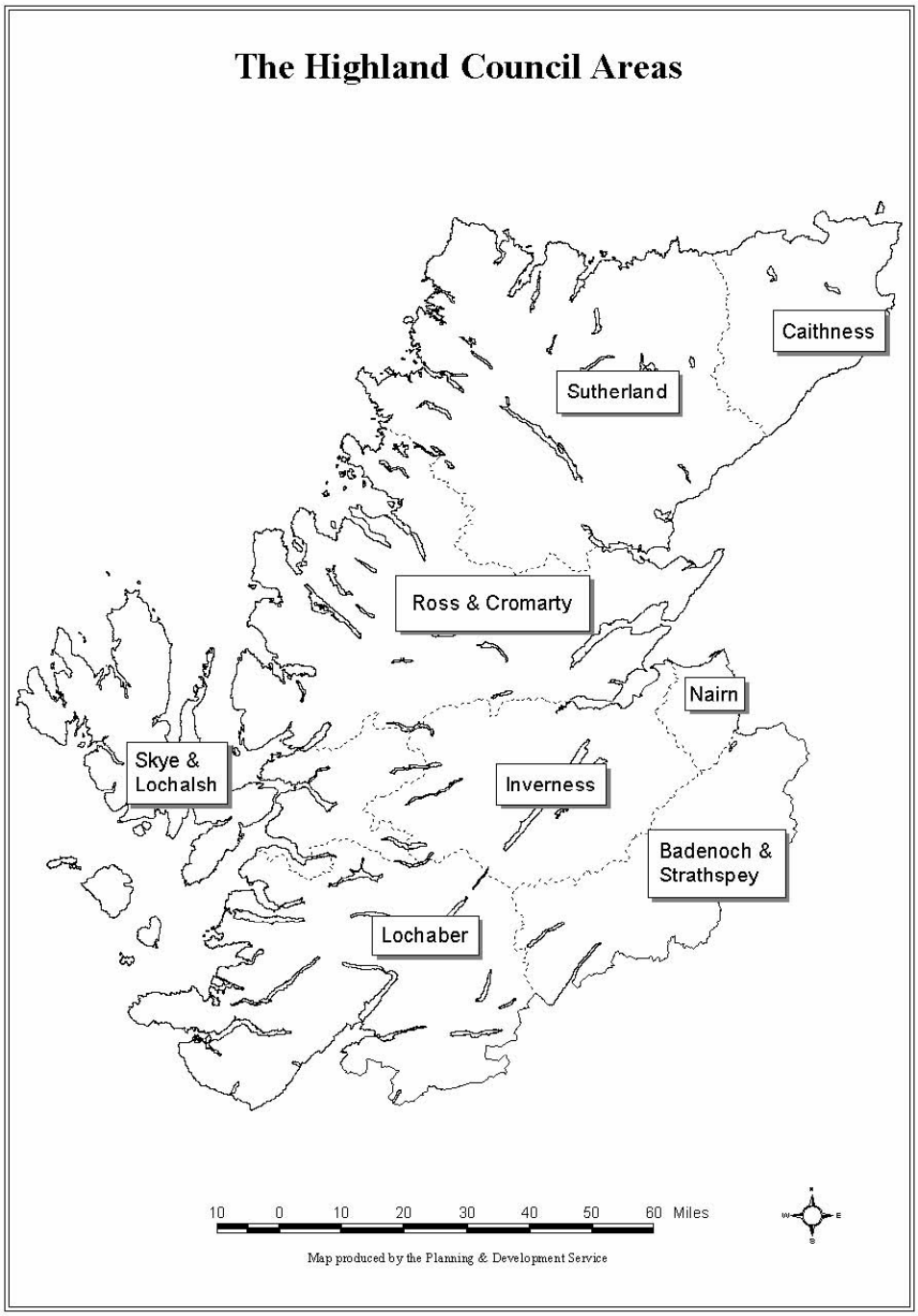
Figure 1 Air Quality Objectives

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene			
All authorities	16.25 μg/m^3	running annual mean	31.12.2003
Authorities in England and Wales only	5.00 μg/m^3	annual mean	31.12.2010
Authorities in Scotland and Northern Ireland only	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			
Authorities in England, Wales and Northern Ireland only	10.0 mg/m^3	maximum daily running 8-hour mean	31.12.2003
Authorities in Scotland only	10.0 mg/m^3	running 8-hour mean	31.12.2003
Lead	0.5 μg/m^3	annual mean	31.12.2004
	0.25 μg/m^3	annual mean	31.12.2008
Nitrogen dioxide	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
Particles (PM_{10}) (gravimetric)	50 μg/m^3 not to be exceeded more than 35 times a year	24 hour mean	31.12.2004
All authorities	40 μg/m^3	annual mean	31.12.2004
Authorities in Scotland only	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
Sulphur dioxide	350 μg/m^3 not to be exceeded more than 24 times a year	1 hour mean	31.12.2004
	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

5 The Highland Council Areas

Figure 2 shows the administrative areas in the Highland Council prior to restructuring, which commenced in November 2006

Figure 2 The Highland Council Areas



6 New Monitoring Results

The Highland Council continues to monitor pollutant concentrations at twelve sites in the district. Two of the sites are an automatic station, part of the UK AURN. The remaining ten sites utilise passive diffusion tubes.

6.1 Automatic Monitoring

Telford Street, Inverness

The site is adjacent to a pathway connecting Telford Street (A862) and Cameron Square Inverness. It is 4 metres from the A862. It is a predominantly residential area with a retail business park 250 metres away.

- Site address: Telford Street IV3 5LE
- OS Grid Reference: NH657457
- Site Type: Roadside
- Start Date: 17/07/2001
- Pollutants Measured: Nitrogen Dioxide; Carbon Monoxide; PM10 (measured gravimetrically by Partisol)

A diffusion tube collocation study is undertaken at this site. Ratified data from this site is available on the UK Air Quality Archive to 31/12/2006.

Results for the five complete years 2002 to 2006 are shown in Figure 3 to Figure 5.

Figure 3 Nitrogen dioxide levels at Telford Street, Inverness

Nitrogen dioxide	2002	2003	2004	2005	2006	Air Quality Objective
% data capture	97.8	98.3	98.1	97.1	99	
Annual Mean µg/m3	21.8	23.1	22.6	21	22	The air quality objective annual mean to be achieved by 31/12/2005 is 40 µg/m3
Number of exceedences of the hourly mean objective	0	0	0	0	0	The air quality objective to be achieved by 31/12/2005 is that the hourly mean concentration should not exceed 200 µg/m3 more than 18 times a year.

Figure 4 Carbon monoxide levels at Telford Street, Inverness

Carbon monoxide	2002	2003	2004	2005	2006	Air Quality Objective
% data capture	65.8	93.5	95.3	97.1	99.2	
Average Hourly Mean µg/m3	0.43	0.45	0.43	0.52	0.40	
Number of exceedences of the 8 hour running mean objective	0	0	0	0	0	The air quality objective is that the 8 hour running mean concentration should not exceed 10 mg/m3.

Figure 5 Particulate levels at Telford Street, Inverness

Particulate Matter (PM10)	2002	2003	2004	2005	2006	Air Quality Objective
% data capture	65.8	93.4	95.3	94	90.9	
Annual Mean µg/m3	17.3	17.3	15	16.7	19.5	
2010 projected annual mean µg/m3	16.3	15.9	14.5	16.1	18.7	The air quality objective annual mean to be achieved by 31/12/2010 is 18 µg/m3
Number of exceedences of the 24 hour mean objective	1	10	1	2	5	The air quality objective to be achieved by 31/12/2010 is that the hourly mean concentration should not exceed 50 µg/m3 more than 7 times a year.

There were no exceedences of the air quality objectives for Nitrogen dioxide or Sulphur dioxide at this monitoring location in 2006.

Projected annual mean concentration for PM10 based upon the 2006 data exceeds the annual mean objective for 2010. However the 2006 data shows a 20% increase over the pollutant concentrations monitored at this location in the previous four years. Continued monitoring through 2007 will establish whether this result indicates a long term trend of increased concentrations or an unusual short term increase.

Fort William.

In June 2006 a new AUN site was established in Fort William in 2006. Monitoring commenced on the 22nd June 2006 for Nitrogen dioxide and Ozone. Monitoring for PM10 and PM2.5 as part of the Partisol Research Network commenced on 1st January 2007. A full year of ratified data is not yet available for NO2. However in the first six months of operation there were no exceedences of the 24 hour Mean Objective. There is not yet available any ratified data for particles. Available data for this site is summarised in Figure 6 below.

Site Summary
The site is on open ground to the north-east of Fort William town centre.

Site Address:
Camanachd Crescent, Fortwilliam

OS Grid reference: 210856 774430
Site type: Urban
Start Date: 22/6/06
Pollutants Monitored: Nitrogen Dioxide; Ozone; PM10, PM2.5 from 1/1/07

Figure 6 Nitrogen dioxide levels at Fort William

Nitrogen dioxide	2006	Air Quality Objective
% data capture	42	
Annual Mean µg/m3	N/A	The air quality objective annual mean to be achieved by 31/12/2005 is 40 µg/m3
Number of excedences of the hourly mean objective	0	The air quality objective to be achieved by 31/12/2005 is that the hourly mean concentration should not exceed 200 µg/m3 more than 18 times a year.

6.2 Passive Diffusion Tube monitoring

Nitrogen dioxide (NO2) is monitored on a monthly basis at a number of locations in Dingwall and Inverness using diffusion tube samplers. The four monitoring sites in Dingwall are included in the UK National Survey. The locations of all diffusion tube sites are shown in the maps in Appendix A. Nitrogen dioxide tubes using the 20% TEA in Water method are supplied and analysed by Gradko International. The Laboratory is UKAS accredited for the analysis of Nitrogen dioxide diffusion tubes. Annual mean concentrations are derived according to the advice contained in LAQM.TG(03). Results have been bias adjusted as determined by the local collocation study at Telford Street, Inverness. On occasion, diffusion tubes are removed or vandalised. Figure 7 shows the number of months of data that was captured for each site. Results for locations returning less than 9 months data have been adjusted according to the method described in Box 6.5 of LAQM.TG(03). Figure 8 shows Nitrogen dioxide levels between 2004 and 2006

Figure 7 Number of months for which data was collected in 2006

IV1	IV2A	IV2B	IV3A	IV3B	IV3C	IV4A	IV4B	IV4C	IV5	RC1	RC2	RC3	RC4
9	12	9	12	10	8	12	12	12	12	12	12	10	12

Figure 8 Nitrogen dioxide levels at in Inverness and Dingwall

Site	ID	Type	Annual Mean Concentration (ug/m3)		
			2006	2005	2004
Telford Street, Inverness	IV4	Diffusion Tube, Roadside (collocation study)	22	22	22.6
Union Street, Inverness	IV1	Diffusion Tube, Roadside	33	34	32.1
Academy Street, Inverness	IV2A	Diffusion Tube, Roadside	36	33	29.9
Academy Street, Inverness	IV2B	Diffusion Tube, Roadside	21	22	20.2
Queensgate, Inverness	IV3A	Diffusion Tube, Roadside	35	37	35.4
Queensgate, Inverness	IV3B	Diffusion Tube, Roadside	32	27	24.5
Kenneth Street, Inverness	IV5	Diffusion Tube, Roadside	23	20	21.4
Wyvis Terrace, Dingwall	RC1	Diffusion Tube, Roadside	17.5	21.1	18
Station Road, Dingwall	RC2	Diffusion Tube, Roadside	27.3	35.3	31
Kintail Place, Dingwall	RC3	Diffusion Tube, Urban Background	5.9	8	7
Burns Crescent, Dingwall	RC4	Diffusion Tube, Urban Background	8.1	9.7	8

The annual mean NO2 concentrations for 2006 were below the annual mean objective of 40μg/m3 at all sites.

7 Local Developments

7.1 Glen Ord Maltings

During late 2006 and early 2007 complaints have been received by the Highland Council's Environmental Health Service about emissions from the Maltings at Glen Ord Distillery, Muir of Ord.

A successful application has been made to the Scottish Executive LAQM: Capital Grant Scheme 2007/08 to undertake Dispersion Modelling for the process. Automatic monitoring at relevant exposure locations for Sulphur dioxide, Nitrogen dioxide and Carbon monoxide will also be undertaken during the latter part of 2007 and into 2008.

7.2 Industrial Processes

The Scottish Environment Protection Agency (SEPA) has provided updated information on industrial processes in the Highland Council area.

The following new processes are identified and should be considered in further review and assessment.

1. Tarmac Ltd, Ready Mix Concrete Plant, 7 Longman Drive, Inverness – PPC/B/1013860, PPC Chapter 3.1(a)(ii) activity.
2. Accumix Concrete Ltd., 6 Carsegate Road South, Carse Industrial Estate, Inverness – PPC/B/1011252, PPC Chapter 3.1(a)(ii) activity.
3. Ennstone Thistle CBP, 24A Longman Drive, Inverness – PPC/B/1008887, PPC Chapter 3.1(a)(ii).

8 Planning and Policies

Information about local air quality was requested from the developer for the following planning applications:

- Achilty Quarry, Contin, Ross-shire – Extension to existing quarry.
- Proposed Combined Heat and Power plant at Cromarty Firth Industrial Park, Invergordon.

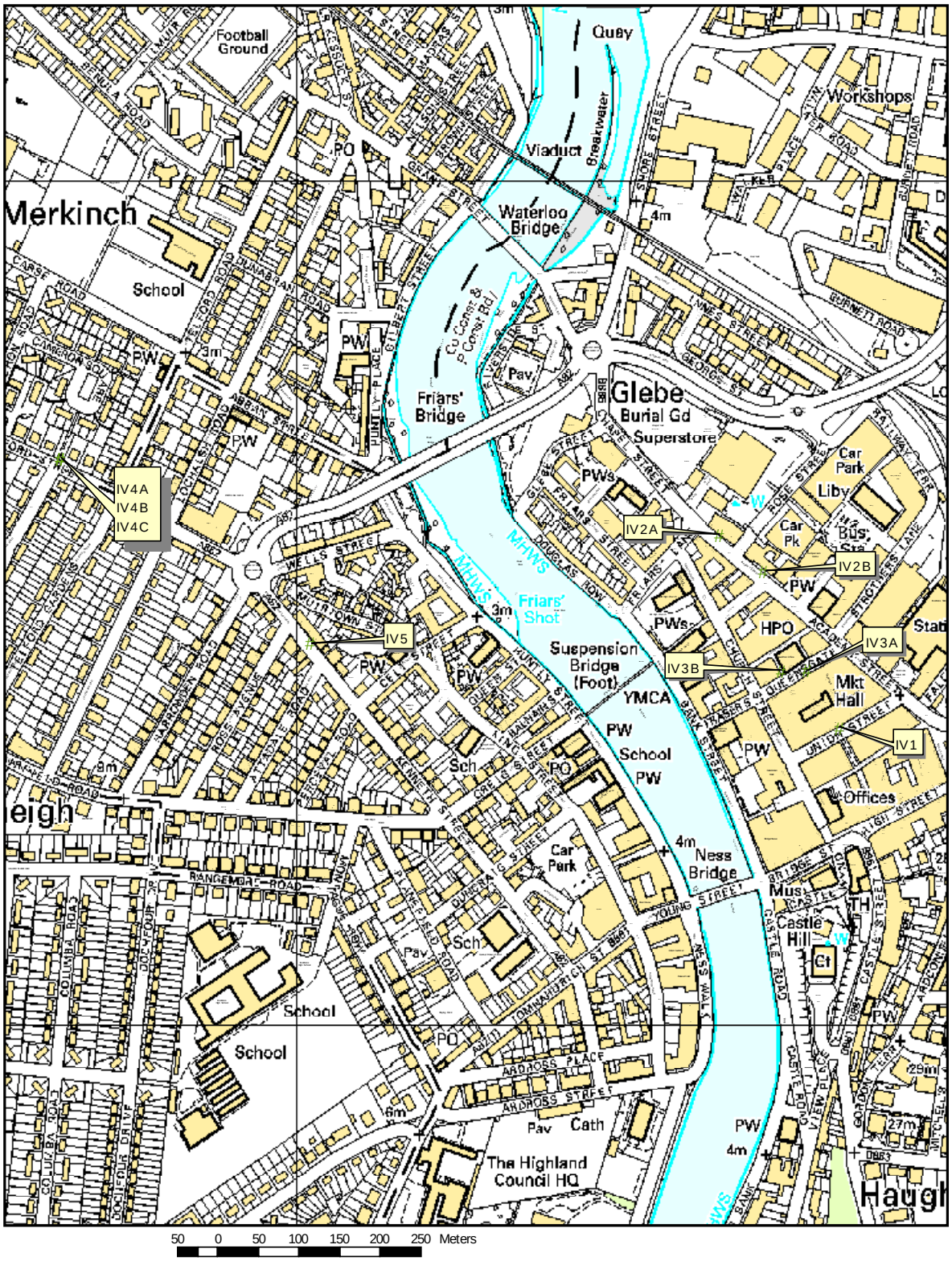
An Environmental Impact assessment was carried out for both of these developments and neither was subsequently considered to be significant in terms of local air quality.

9 Local Transport Plans and Strategies

The Council's Local Transport Strategy dates from 2000 and is currently under review. The new Local Transport Strategy is being produced in accordance with the Scottish Executive's guidance on Local Transport Strategies and will take account of the emerging Regional Transport Strategy and the National Transport Strategy.

Appendix A – Maps

- **Nitrogen dioxide diffusion tube locations – Inverness**
- **Nitrogen dioxide diffusion tube locations – Dingwall**
- **AUN Site – Fort William**



The Highland Council
Comhairle na Gaidhealtachd

Inverness Diffusion Tube Sites

SUPPLIED BY THE HIGHLAND COUNCIL

13th August 2007

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Scale
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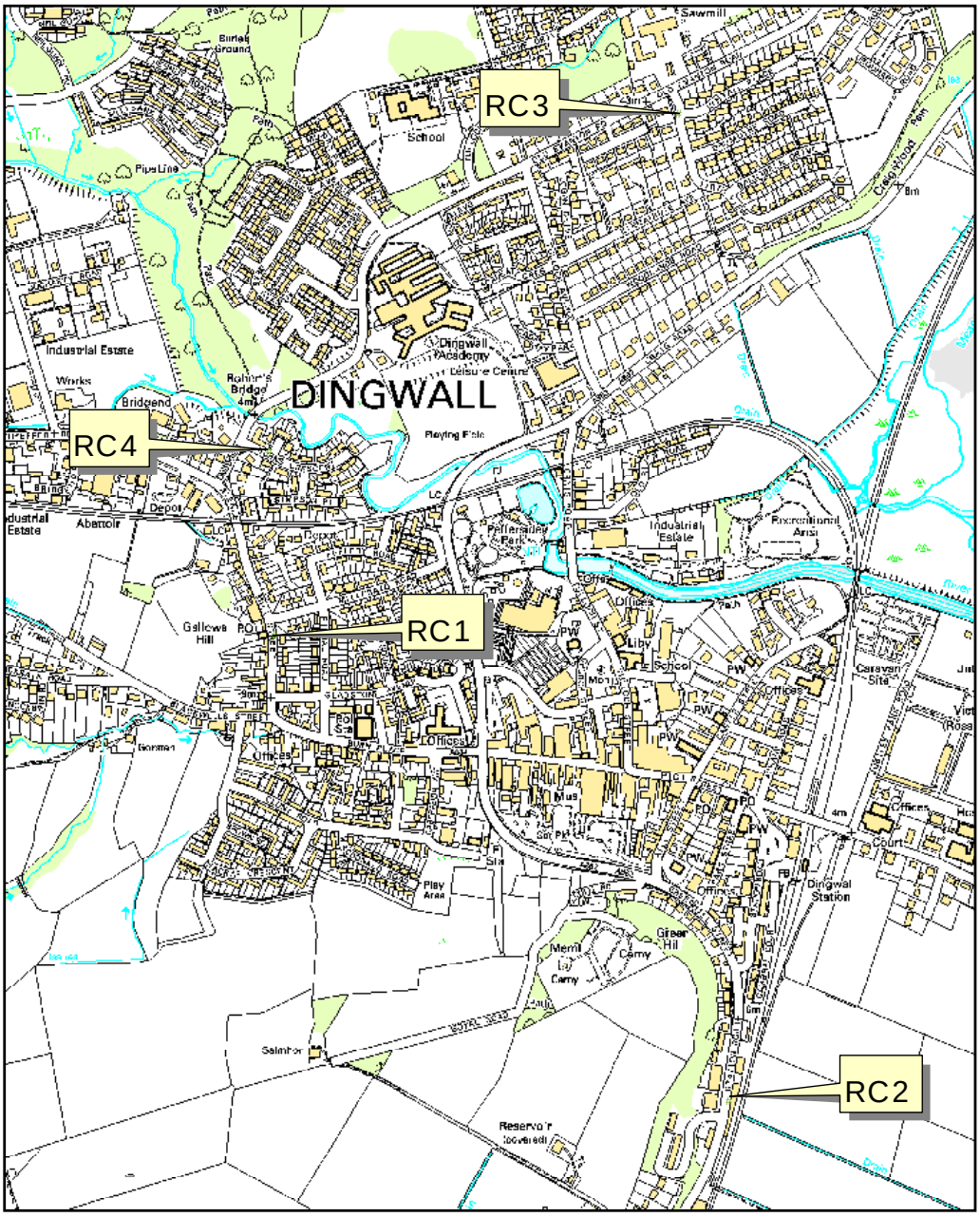

The Highland Council
Comhairle na Gàidhealtachd

Diffusion Tube Monitoring Locations

Dingwall

SUPPLIED BY THE HIGHLAND COUNCIL

16th June 2005

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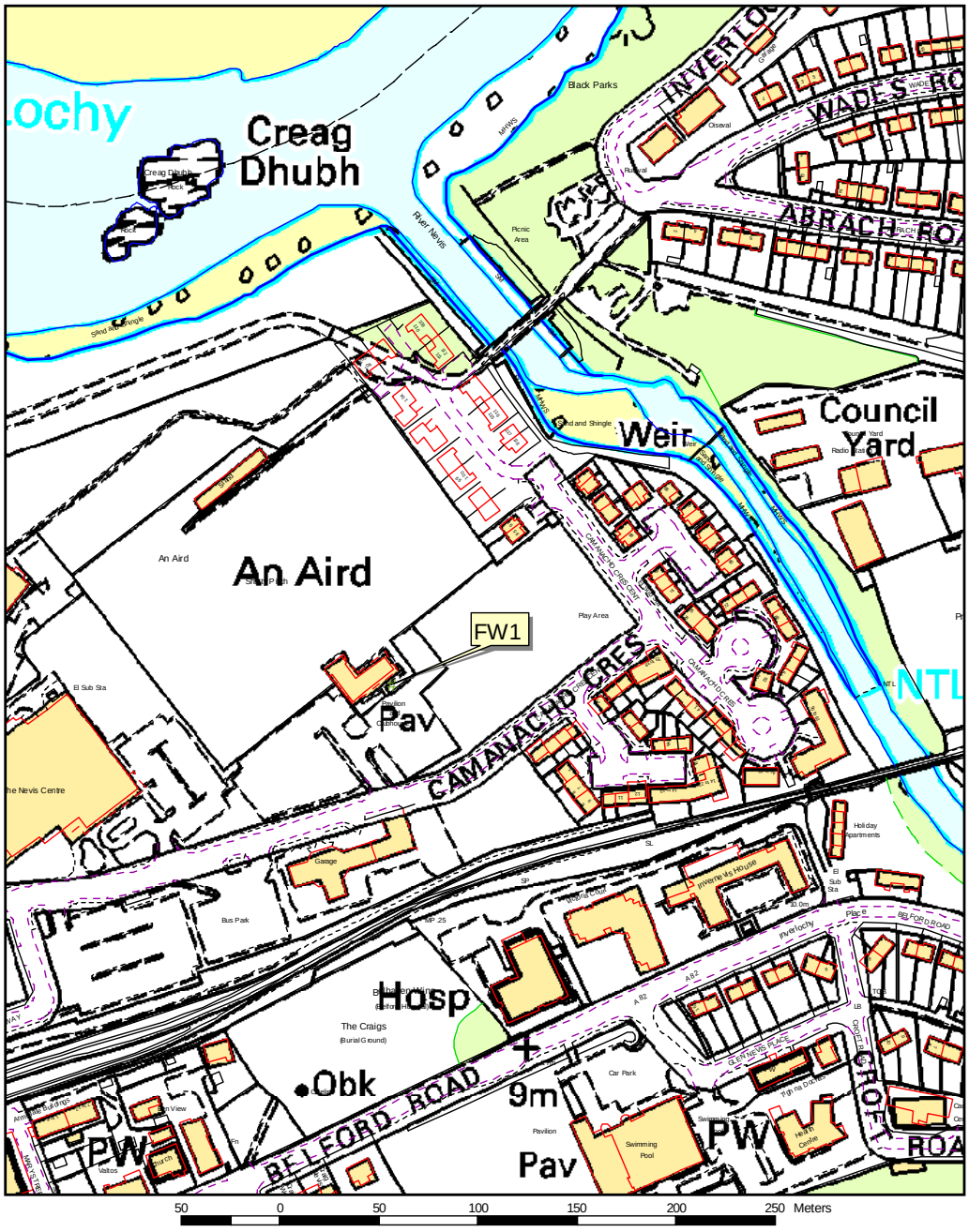

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SEIRBHEIS THE Highland Council

Fort William AUN Site

N
Scale
1:2500

13th August 2007

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