2014 Air Quality Progress Report for Dungannon and South Tyrone Borough Council

In fulfillment of the Environment (Northern Ireland) Order 2002 - Local Air Quality Management

APRIL 2014

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Executive Summary

Monitoring at 10 locations within Dungannon and South Tyrone Borough Council's area has demonstrated that there are **3** sites where NO_2 levels exceeded the objective limit of 40ug/m^3 ; Newell Road, Dungannon; Church Street (Junction Site), Dungannon; and Charlemont Street in Moy.

It must be noted that whilst the objective level at Church Street location 'Junction Site' was breached, this location is not at the sensitive receptor (Church St Mews). The annual mean for Church St Mews in 2013 is 37 µg/m^3. This is the third year in a row that the annual mean has been below the limit of 40 µg/m^3 as the annual mean for 2012 was 37 µg/m^3 and in 2011 was 39 µg/m^3.

The Stewartstown Road monitoring site in Coalisland also has a mean annual result below the objective limit (34 µg/m^3) for the second successive monitoring year. The 2012 annual mean was 35 µg/m^3. On this basis the council has determined that it is unlikely that there will be a breach of the NO2 objective limit at this location in the foreseeable future.

The Updating and Screening Assessment for 2012, the Progress Report for 2013 and this Progress Report (2014) have shown that the air quality objective was not breached at Church Street Mews (Dungannon) & Stewartstown Road (Coalisland) in the last three consecutive years (2011, 2012 and 2013) where there are currently AQMA's in situ. In the 2013 Progress Report, Dungannon and South Tyrone Borough Council stated that it would continue monitoring for a further year at both of the AQMA's to determine if a breach of the objective limit for Nitrogen Dioxide (NO2) was likely. Since monitoring during 2013 has not resulted in a breach of the NO2 limit values for a third consecutive year, **Dungannon and South Tyrone Borough Council will now proceed to revoke the Air Quality Management Areas at Church Street (Dungannon) and at Stewartstown Road (Coalisland)**.

No other pollutants were assessed to have an impact on air quality within the borough at this time and therefore no AQMA's or detailed assessments are required for any other pollutants.

Dungannon and South Tyrone Borough Council has not seen any significant changes from any pollution sources since the last round of review and assessment and no other sources of pollution have been identified. Therefore the likely impact from such sources is negligible.

A review of the air quality monitoring sites in the borough was completed in December 2013 by the Council's Air Quality Management Officer. This review of the diffusion tube monitoring network in the district determined that Dungannon and South Tyrone Borough Council remove a total of 13 diffusion tubes from the following locations;

- Market Square, Dungannon (x1)
- Dungannon Road, Coalisland (x3)

- Church Street, Takeaway, Dungannon (x3)
- Church Street, St Annes (x3)
- Church Street, Junction (x3)

These 13 diffusion tubes were redistributed to 5 new locations within the Borough to the following locations at the beginning of January 2014;

- Dunclare Way, Dungannon (x1)
- Main Street, Fivemiletown (x3)
- Main Street, Clogher (x3)
- The Quays, Moy (x3)
- Laghey Road, Moy (x3)

The next course of action to be taken by the council is to **submit the pending Action Plans for the existing AQMA's at Newell Road in Dungannon and Charlemont Street in Moy**.

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1 Introduction

1.1 Description of Local Authority Area

Dungannon and South Tyrone Borough is located in the geographical heartland of Northern Ireland, a beautiful rural, historic area served by the main motorway network in Northern Ireland, with major road links to the business capital of Belfast, South towards Armagh City and Dublin; and west to Donegal and Sligo. The borough does not have a high level of heavy industry. The majority of the local work force is employed in the delivery of services such as local government, education authority, health and social services, minor retail, agriculture and food processing. Although there are a number of quarries provided graded stone & gravel as well as road-stone coating. The greatest contribution to air quality pollution is from road traffic. Particularly in the town centre where the road network is quickly reaching it's maximum capacity due to the increase in car ownership. Given the size of the rural hinterland surrounding the town of Dungannon, public transport resources are stretched and the reliance on the motor car is greatly exacerbated. Dungannon is regarded as a "route hub" to the border from Mid-Ulster travelling to Belfast, North-West Northern Ireland the Republic Of Ireland; and is main through-route between mid-Ulster and the south east of Northern Ireland and hence probably has a traffic flow higher than that which could be created by local traffic alone. Particulate Matter (PM10) and NO_2 would be considered as the pollutants most at risk of breaching the objective limits in Dungannon as a result of road traffic. Dungannon already has declared an AQMA in January 2008 for NO_2 on Church Street; and in 2012 also declared AQMA's at Newell Road, Dungannon; Stewartstown Road, Coalisland; and Charlemont Street in Moy.

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 LAQM **in Northern Ireland** are set out in the Air Quality Regulations (Northern Ireland) 2003, Statutory Rules of Northern Ireland 2003, no. 342, and are shown in Table 1.1. This table shows the objectives in units of micrograms per cubic metre $\mu g/m^3$ (milligrammes per cubic metre, mg/m^3 for carbon monoxide) with the number of exceedences in each year that are permitted (where applicable).

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

Pollutant	Concentration	Measured as	Date to be achieved by
Benzene	16.25 $\mu g/m^3$	Running annual mean	31.12.2003
	3.25 $\mu g/m^3$	Running annual mean	31.12.2010
1,3-Butadiene	2.25 $\mu g/m^3$	Running annual mean	31.12.2003
Carbon monoxide	10.0 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.5 $\mu g/m^3$	Annual mean	31.12.2004
	0.25 $\mu g/m^3$	Annual mean	31.12.2008
Nitrogen dioxide	200 $\mu g/m^3$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu g/m^3$	Annual mean	31.12.2005
Particles (PM_{10}) (gravimetric)	50 $\mu g/m^3$, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 $\mu g/m^3$	Annual mean	31.12.2004
Sulphur dioxide	350 $\mu g/m^3$, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 $\mu g/m^3$, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 $\mu g/m^3$, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

1.4 Summary of Previous Review and Assessments

Report Type	Date	Exceedences	Detailed Assessment Required	AQMA's Declared
Initial Review and Assessment	Jan 2001	None	Yes	None
Reappraisal of Traffic Pollution Modelling	Jan 2004	None	No	None
Report of the Second and Third Stage R&A of Local Air Quality	Aug 2004	None	No	None
Progress Report	June 2005	None	Yes	None
Review and Assessment: Supplementary Report on NO2 concentrations in Church Street Dungannon	June 2005	None	No	None
Updating and Screening Assessment	June 2006	Yes	Yes	None
Further Assessment of NO2 levels in Church Street	September 2007	Yes	No	Yes
Progress Report	June 2008	Yes	No	Already declared
AQMA Action Plan and Progress Report	July 2010	-	-	-
Progress Report	April 2011	Yes	Yes	No
Detailed Assessment	July 2011	Yes		Yes
Updating and Screening Assessment	April 2012	Yes	No	No
Progress Report	April 2013	Yes	No	No

Figure 1.1 Map of AQMA Boundaries (if applicable)

See Appendix B

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

There are no automatic monitoring sites in operation within the Borough

2.1.2 Non-Automatic Monitoring

During 2013 Dungannon and South Tyrone Borough Council carried out monitoring of NO_2 with diffusion tubes at 10 sites throughout the Borough. The NO_2 diffusion tubes were prepared and analysed by Environmental Scientifics Group Limited (ESG). The tubes are prepared by coating the grids in a 50% v/v solution of the absorbent, triethanolamine (TEA) in Acetone. Analysis is carried out using a colorimetric technique.

Table 2.2 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 ?
Market Square	Roadside	-	NO_2	N	Y	<2m	N
Ardgannon	Urban Background	-	NO_2	N	Y(<10)	1m	Y
Church Street (4 sites)	Roadside	-	NO_2	Y	Y(<1m)	1m	Y
Newell Road	Roadside	-	NO_2	N	Y(<1m)	1m	Y
Charlemont Street, Moy	Roadside	-	NO_2	N	Y(<1m)	1m	Y
Dungannon Road, Coalisland	Roadside	-	NO_2	N	Y(<1m)	1m	Y
Stewartstown Road, Coalisland	Roadside	-	NO_2	N	Y	1m	Y

The bias factor used to adjust the diffusion tube results was taken from the DEFRA air quality website http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html. The bias factor used to adjust the diffusion tubes is 0.80

The details of Environmental Scientifics Group (ESG) WASP results are provided in Appendix A.

See Appendix C for Map(s) of Monitoring Sites (if applicable)

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide

Three of the diffusion tube sites monitored in Dungannon Borough recorded an NO_2 result above the objective limit of 40µg/m^3 during 2013. These were at Church Street (Junction Site) & Newell Road in Dungannon; and Charlemont Street in Moy.

Dungannon and South Tyrone Borough Council do not monitor NO_2 pollution using automatic monitoring equipment.

Details of Environmental Scientifics Group Limited (ESG) WASP can be found in Appendix A.

Nitrogen Dioxide Diffusion Tube Monitoring Data

Table 2.3 Results of Nitrogen Dioxide Diffusion Tubes

Dungannon and South Tyrone Borough Council monitors NO_2 pollution using diffusion tubes at 10 sites through the borough. All of the tubes are positioned in accordance with the practical guidelines published by AEA Energy and Environment in a report to Defra and the Devolved Administrations.

Table 2.4a Results of Nitrogen Dioxide Diffusion Tubes

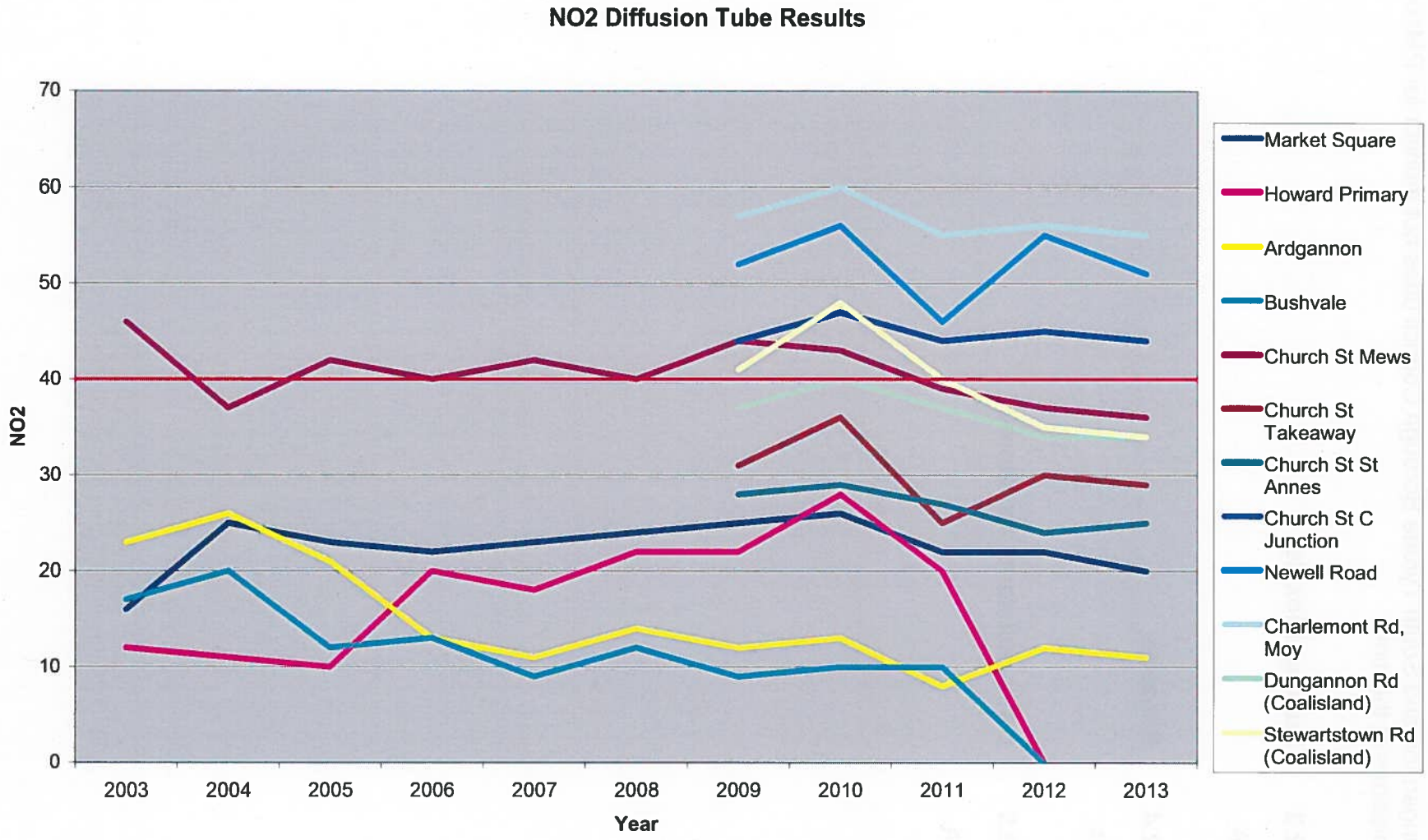
Site ID	Location	Within AQMA?	Data Capture 2013 %	Annual mean concentrations 2013 (µg/m^3) Adjusted for bias
Market Square	Market Square	N	100	20
Ardgannon	Ardgannon	N	100	12
Church Street Mews	Church Street 1	Y	100	37
Church Street Takeaway	Church Street A	Y	100	30
Church Street St Annes	Church Street B	Y	100	26
Church Street Junction	Church Street C	Y	100	**44**
Newell Road	Newell Road	Y	100	**52**
Charlemont Street, Moy	Charlemont Street, Moy	Y	100	**56**
Dungannon Road, Coalisland	Dungannon Road, Coalisland	N	100	35
Stewartstown Road, Coalisland	Stewartstown Road, Coalisland	Y	100	34

NO_2 emissions are monitored at 4 locations on Church Street in triplicate diffusion tube formation. The result obtained at this site is an average of the triplicate tubes.

Table 2.4b Historical Results of Nitrogen Dioxide Diffusion Tubes

Site ID	Site Type	Within AQMA?	Annual Mean Concentration (µg/m^3) - Adjusted for Bias [a]				
			2009 (Bias Factor 0.90)	2010 (Bias Factor 0.92)	2011 (Bias Factor 0.84)	2012 (Bias Factor 0.79)	2013 (Bias Factor 0.80)
Market Square	Roadside	N	25	26	22	22	20
Ardgannon	Roadside	N	12	13	6	12	12
Church Street Mews	Roadside	Y	**44**	**43**	39	37	37
Church Street Takeaway	Background	Y	31	36	25	30	30
Church Street St Annes	Background	Y	28	29	27	24	26
Church Street Junction	Roadside	Y	**44**	**47**	44	**45**	**44**
Newell Road	Roadside	Y	**52**	**56**	46	**55**	**52**
Charlemont Street, Moy	Roadside	Y	**57**	**60**	55	**56**	**56**
Dungannon Road, Coalisland	Roadside	N	37	**40**	37	34	35
Stewartstown Road, Coalisland	Roadside	Y	**41**	**48**	**40**	35	34

Figure 2.3 Trends in Annual Mean NO_2 Concentrations Measured at Automatic Monitoring Sites in the Borough.



2.2.2 PM_{10}

Dungannon and South Tyrone Borough Council does not monitor for PM10 emissions at this time.

2.2.3 Sulphur Dioxide

N/A

2.2.4 Benzene

N/A

2.2.5 Other pollutants monitored

N/A

2.2.6 Summary of Compliance with AQS Objectives

Dungannon and South Tyrone Borough Council has examined the results from monitoring in the borough.

Concentrations within the AQMA's still exceed the objective for Nitrogen Dioxide at Church Street Site (Junction) & Newell Road, Dungannon; and Charlemont Street, Moy and the AQMA's should remain at Newell Road and Moy. The Council will move to revoke the AQMA currently at Church Street as the monitoring results continue to demonstrate level below the objective limits at the sensitive receptor, Church St Mews.

Concentrations within the AQMA at Stewartstown Road in Coalisland have not exceeded the objective limit for Nitrogen Dioxide and the council will move to revoke the AQMA as the monitoring results continue to demonstrate levels below the objective limits at the sensitive receptor.

Concentrations outside of the AQMA are all below the objectives at relevant locations, therefore there is no need to proceed to a Detailed Assessment.

3 New Local Developments

3.1 Road Traffic Sources

The A4 Dungannon to Ballygawley dual carriageway was completed in 2010. However no new sensitive receptors are within close proximity of the road.

3.2 Other Transport Sources

3.3 Industrial Sources

3.4 Commercial and Domestic Sources

3.5 New Developments with Fugitive or Uncontrolled Sources

Dungannon and South Tyrone 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

There are currently no Local or Regional Air Quality Strategies applicable to Dungannon and South Tyrone Borough Council. The Southern Group Air Quality Strategy came to an end in 2010. No further strategies are planned at this time.

5 Planning Applications

There were no planning applications submitted to The Northern Ireland Planning Service within the Dungannon and South Tyrone Borough Council area during 2013 which were deemed to have any impact on local air quality.

6 Air Quality Planning Policies

N/A

7 Local Transport Plans and Strategies

Regional Transportation Strategy

The Regional Transportation Strategy (RTS) for Northern Ireland 2002- 2012 identifies strategic transportation investment priorities and considers potential funding sources and affordability of planned initiatives. The RTS focuses on three geographic areas and one overlying Network. These are as follows:

- Belfast Metropolitan Area (BMA), containing the continuous area comprising Belfast City Council and the built-up areas within the Council areas of Carrickfergus, Castlereagh, Lisburn, Newtownabbey and North Down;
-
- Other Urban Areas (OUAs): collectively those towns described as main or local hubs in the RDS (including Dungannon) and other towns outside the BMA with a population greater than 5,000);

- Rural Area – the remainder of Northern Ireland; and

- Regional Strategic Transport Network (RSTN) comprising the complete rail network and all motorway and trunk road links (including the Key Transport Corridors and Link Corridors).

The RTS is a "daughter document" of the Regional Development Strategy (RDS), which sets out the spatial development framework for Northern Ireland up to 2025. Implementation of the Strategy will be through three Transport Plans covering the Regional Strategic Transport Network (RSTN), the Belfast Metropolitan Area (BMA), and the Sub-Regional Transport Plan (SRTP). Transport studies undertaken to support the RSTN Transport Plan will take due account of current and future cross-border inter-urban transport demands and the roles of the gateway cities and towns, including Dungannon.

3.4 Regional Strategic Transport Network Transport Plan

The Regional Strategic Transport Network (RSTN) Transport Plan prepared by the Department for Regional Development (DRD) covers the complete rail network, five Key Transport Corridors (KTCs), four Link Corridors, the Belfast Metropolitan Transport Corridors and the remaining trunk network across Northern Ireland. The Plan is based on the guidance set out in the Regional Development Strategy (RDS) and the Regional Transportation Strategy (RTS), as described in Sections 3.2 and 3.3 of the RSTN Transport Plan.

The RSTN Transport Plan consists of proposals for transport schemes and measures for the maintenance, management and development of the RSTN until 2015. The RSTN Transport Plan also includes a number of measures for rail, bus, roads, walking and cycling.

3.5 Sub-Regional Transport Plan 2015

The Sub-Regional Transport Plan (SRTP) was prepared by the Department for Regional Development (DRD) and completed in 2007. The SRTP is based upon the guidance provided by the Regional Development Strategy (RDS) and the Regional Transportation Strategy (RTS). Proposed public transport measures for Dungannon (within category of Other Urban Areas (OUA)) contained within the SRTP are as follows:

· Improved walk/cycle

· Improved local bus services

· Bus stop Improvement Strategy

· Bus based Park and Ride

· Increased parking at bus/rail station

· Taxi rank

· Transport Programme for People with Disabilities

Spatial Development Strategy for Northern Ireland

The Spatial Development Strategy (SDS) guides the physical development of the Region to 2025. The SDS will contribute to meeting a number of key regional challenges emerging from the significant local, national and international forces, which will drive change over the next 25 years, including:

Transport:

- Promote a change in travel culture and particularly manage the effects of a possible 100% growth in the number of vehicles by 2025;
- Contribute to the creation of a modern, sustainable, safe transportation system for the Region, meeting the travel needs of all groups in society;
- Accommodate the growing volume of freight moving to and from the regional gateways; and
- Strengthen the regional gateways to handle the increasing flow of people and goods in and out of the Region.

Environment:

- Accommodate future development growth while protecting and caring for the environment;
- Reduce the consumption of resources;
- Continue to maintain or, where needed, to improve the quality of air, water and land resources within the Region;
- Seek to maintain local landscape character and to conserve cultural assets; and
- Take particular care to sustain and, where required, to enhance the biodiversity of the Region, its natural habitats, high quality landscapes and built heritage.

Developing a Regional Transportation System

Creating an upgraded and integrated transport system, built around the Regional Strategic Transport Network of the key transport corridors with their main public transport services providing the framework for future development is recognised as one of the key assets to accommodate growth. Strategic planning guidelines relating to the development of a Regional Transport System (RTS) are as follows:

- **SPG-TRAN 1:** To develop a Regional Strategic Transport Network (RSTN), based on Key Transport Corridors (KTCs), to enhance accessibility to regional facilities and services. Two major roads within the District are identified in the RDS as part of the Key Transport Corridors in Northern Ireland: -
- A4 Dungannon - Fivemiletown Road: The South Western Corridor; and
- A5 Aughnacloy - Omagh Road: The Western Corridor.
- In addition, the A29 Cookstown to Moy Road is identified as part of one of three additional Link Corridors in the RTS.

- **SPG-TRAN 2:** To extend travel choice for all sections of the community by enhancing public transport. Including the strengthening of the regional bus network (including the promotion of public transport routes and Park and Ride schemes) and the regional rail system;

- **SPG-TRAN 3:** To integrate land use and transportation to provide a much better range of travel choices for all, and reduce the demand for travel; and

- **SPG-TRAN 4:** To change the regional travel culture and contribute to healthier lifestyles, such as giving greater priority to encouraging more walking and cycling.

8 Climate Change Strategies

N/A

9 Implementation of Action Plans

In the 2013 Progress Report, Dungannon and South Tyrone Borough Council stated that it would continue monitoring for a further year at 2 of the AQMA's (Church Street, Dungannon & Stewartstown Road, Coalisland) to determine if a breach of the objective limit for Nitrogen Dioxide (NO2) was likely. Since monitoring during 2013 has not resulted in a breach of the NO2 limit values for a third consecutive year, **Dungannon and South Tyrone Borough Council will now proceed to revoke the Air Quality Management Areas at Church Street (Dungannon) and at Stewartstown Road (Coalisland)**.

As a result, further work on the Action Plan that was expected to be completed for the Stewartstown Road AQMA has now ceased pending the issuance of the revocation notice.

There are two Action Plans pending for the AQMA's at Newell Road, Dungannon and Charlemont Street, Moy. Dungannon and South Tyrone Borough Council are currently engaged in the consultation process with their AQMA stakeholder committee members and will be producing the necessary Action Plans by the end of summer, 2014.

10 Conclusions and Proposed Actions

10.1 Conclusions from New Monitoring Data

Monitoring at 10 locations within Dungannon and South Tyrone Borough Council's area has demonstrated that there are **3** sites where NO_2 levels exceeded the objective limit of 40ug/m^3 ; Newell Road, Dungannon; Church Street (Junction Site), Dungannon; and Charlemont Street in Moy.

It must be noted that whilst the objective level at Church Street location 'Junction Site' was breached, this location is not at the sensitive receptor (Church St Mews). The annual mean for Church St Mews in 2013 is 37 µg/m^3. This is the third year in a row that the annual mean has been below the limit of 40 µg/m^3 as the annual mean for 2012 was 37 µg/m^3 and in 2011 was 39 µg/m^3.

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No other pollutants were assessed to have an impact on air quality within the borough at this time and therefore no AQMA's or detailed assessments are required for any other pollutants.

Dungannon and South Tyrone Borough Council has not seen any significant changes from any pollution sources since the last round of review and assessment and no other sources of pollution have been identified. Therefore the likely impact from such sources is negligible.

The next course of action to be taken by the council is to **submit the pending Action Plans for the existing AQMA's at Newell Road in Dungannon and Charlemont Street in Moy**.

11 References

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

Appendices

Appendix A QA/QC Data and Gradko WASP Data

Appendix B Diffusion Tube Site Maps

Appendix C Diffusion Tube Monitoring Data 2013

Appendix A: QA:QC Data and Gradko WASP Data

Diffusion Tube Bias Adjustment Factors

The NO_2 diffusion tubes were prepared and analysed by Environmental Sciences Group (ESG) Didcot from the beginning of January 2013. This laboratory takes part in the NO_2 Network QA/QC Field Intercomparison survey. ESG's diffusion tubes are prepared by coating the grids in 50% TEA in Acetone. Dungannon and South Tyrone Borough Council obtained the appropriate bias factor from the DEFRA Website. http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html A bias factor of **0.80** was taken from the drop down menus available on the excel spreadsheet matrix.

Factor from Local Co-location Studies (if available)

Dungannon and South Tyrone Borough Council did not use a Bias Factor from a local Co-location study. Dungannon does not have an automatic NO_2 analyser in the borough to carry out a co-location assessment. Also, although a co-location factor may be available from two other neighbouring councils (Armagh & Newry), it was felt that the national bias factor was drawn from a greater range of sites and could therefore be considered overall more representative of the sites monitored in the borough.

Discussion of Choice of Factor to Use

Dungannon and South Tyrone Borough Council used the Bias Factor from the Defra Website. http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html. This was calculated by using the matrix available on the site by selecting the appropriate laboratory, year of monitoring and significant methodology. Craigavon Borough Council used a bias factor for 2013 (0.80)

PM Monitoring Adjustment

N/A

Short-term to Long-term Data adjustment

N/A

QA/QC of automatic monitoring

N/A

QA/QC of diffusion tube monitoring

See table below

Table 1: Laboratory summary performance for WASP NO_2 PT rounds 115 - 122

The following table lists those UK laboratories undertaking LAQM activities that have participated in recent HSL WASP NO_2 PT rounds and the percentage (%) of results submitted which were subsequently determined to be satisfactory based upon a z-score of $\leq \pm 2$ as defined above.

WASP Round	WASP R115	WASP R116	WASP R117	WASP R118	WASP R119	WASP R120	WASP R121	WASP R122
Round conducted in the period	October - December 2011	January – March 2012	April – June 2012	July – September 2012	October – December 2012	January – March 2013	April – June 2013	July – September 2013
Aberdeen Scientific Services	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Bristol City Council [4]	100 %	-	-	-	-	-	-	
Cardiff Scientific Services	75 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Edinburgh Scientific Services	0 %	100 %	100 %	100 %	100 %	100 %	100 %	75 %
Environmental Services Group, Didcot (formerly Bureau Veritas Laboratories, Glasgow and Harwell Scientifics) [1] [2]	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Exova (formerly Clyde Analytical)	75 %	0 %	0 %	100 %	25 %	75 %	NR [5]	NR [5]
Glasgow Scientific Services	100 %	100 %	50 %	100 %	100 %	50 %	25 %	100 %
Gradko International [2]	37.5 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Kent Scientific Services	75 %	75 %	100 %	75 %	100 %	50 %	75 %	100 %
Kirklees MBC	50 %	100 %	100 %	75 %	100 %	100 %	100 %	100 %
Lambeth Scientific Services	25 %	75 %	100 %	0 %	100 %	100 %	0 %	50 %
Milton Keynes Council	100 %	100 %	100 %	75 %	100 %	50 %	100 %	75 %
Northampton Borough Council	100 %	100 %	100 %	100 %	100 %	0 %	100 %	100 %
Somerset Scientific Services [3]	100 %	100 %	100 %	100 %	100 %	100 %	100 %	75 %
South Yorkshire Air Quality Samplers	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Staffordshire County Council	100 %	100 %	100 %	75 %	100 %	50 %	100 %	100 %
Tayside Scientific Services (formerly Dundee CC)	100 %	100 %	100 %	100 %	100 %	75 %	100 %	100 %
West Yorkshire Analytical Services	100 %	75 %	75 %	50 %	100 %	100 %	100 %	50 %

[1] Bureau Veritas laboratory and Harwell Scientific now part of ESG Group.
[2] Participant subscribes to two sets of test samples (2 x 4 test samples) in each WASP PT round.
[3] New participant from R115.
[4] No longer involved in NO_2 diffusion tube measurements from R116.
[5] Not reported before round deadline

Appendix B

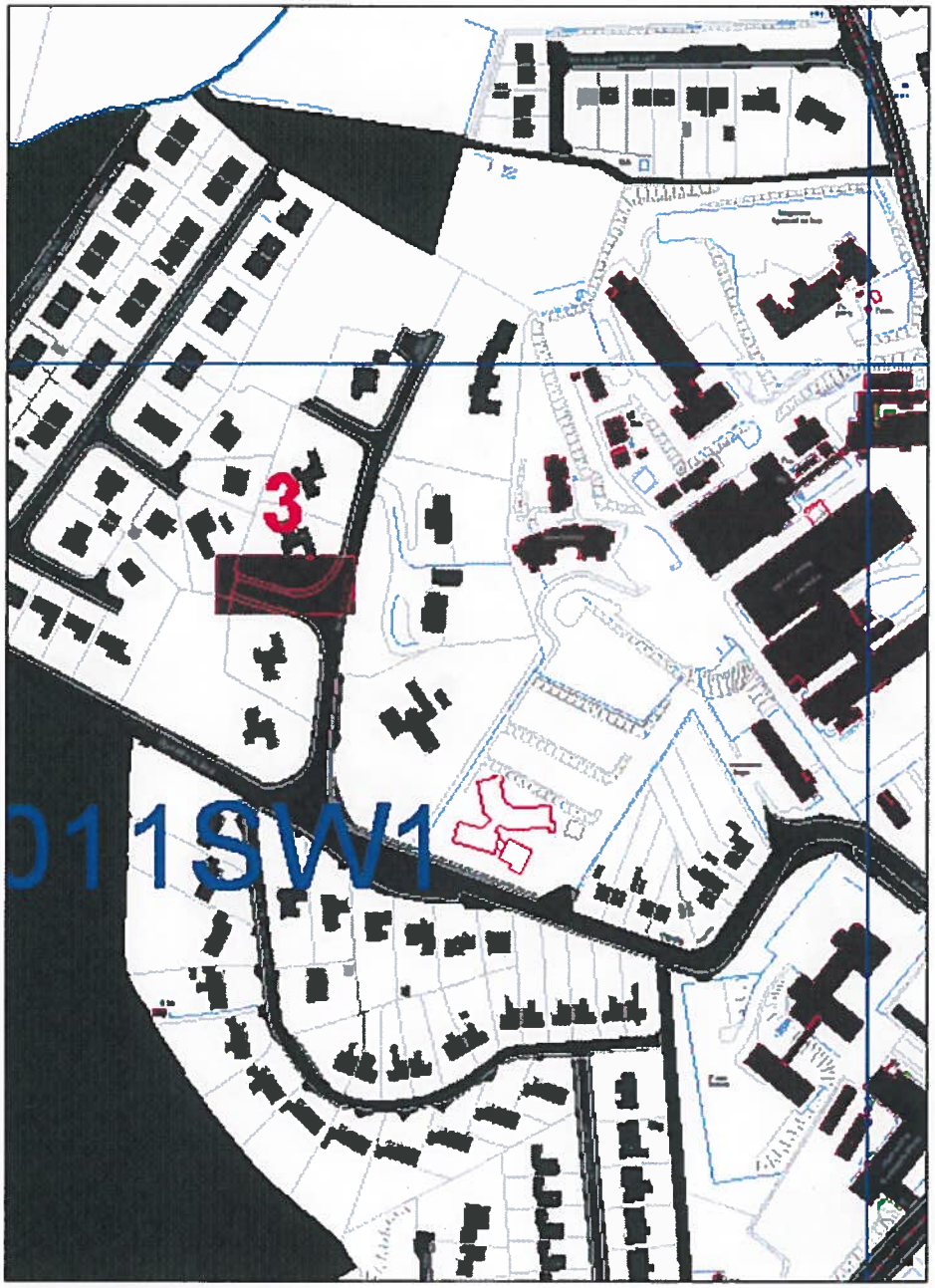
Diffusion Tube Monitoring Sites & AQMA Maps

scale1 2500

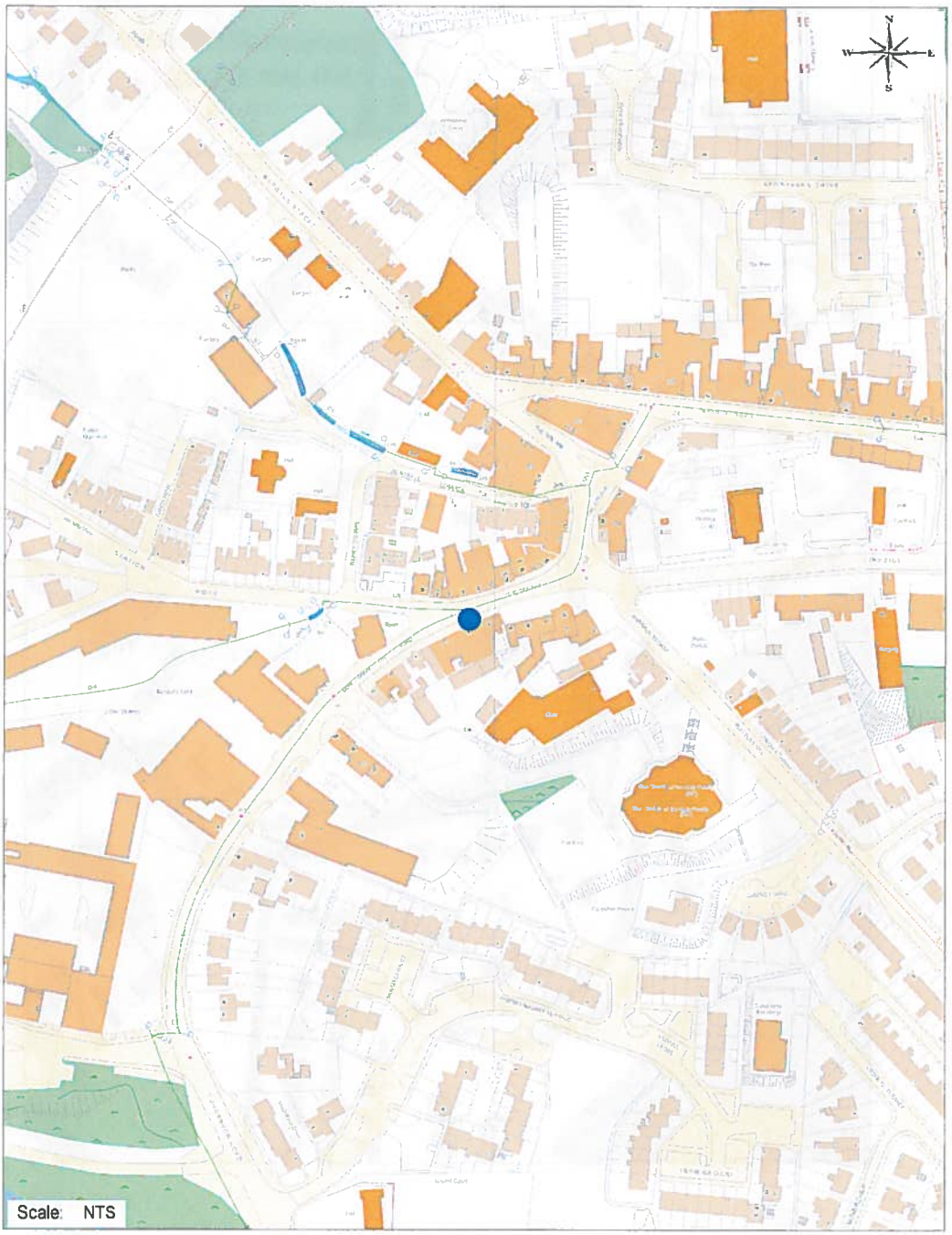
DUNGANNON & SOUTH TYRONE Borough Council

Dungannon and South Tyrone Borough Council,
Council Offices, Circular Road, Dungannon BT71 6DT,
Tel: 028 8772 0300, Fax: 028 8772 0366

Market Square and Church Street (x4 sites)


3
011SW1
scale1 2500
DUNGANNON & SOUTH TYRONE
BoroughCouncil

Ardgannon



NO2 MONITORING LOCATION MAP

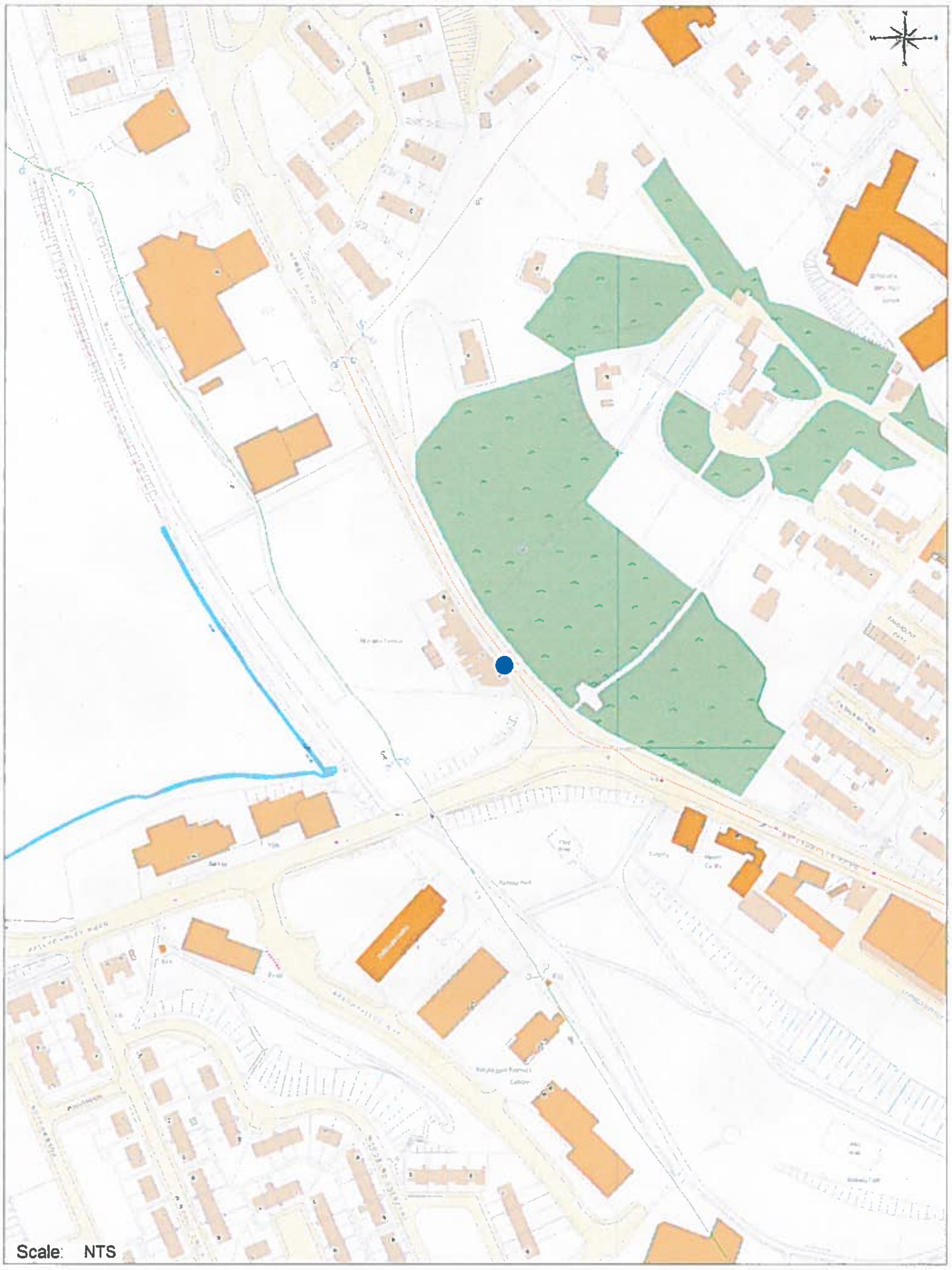
Dungannon Road, Coalisland (10)

DUNGANNON & SOUTH TYRONE Borough Council

Land & Property Services.

NO2 Monitoring Point (Passive Diffusion Tube)

Dungannon and South Tyrone Borough Council,
Council Offices, Circular Road,
Dungannon BT71 6DT,
Tel: 028 8772 0300, Fax: 028 8772 0368



DUNGANNON & SOUTH TYRONE Borough Council

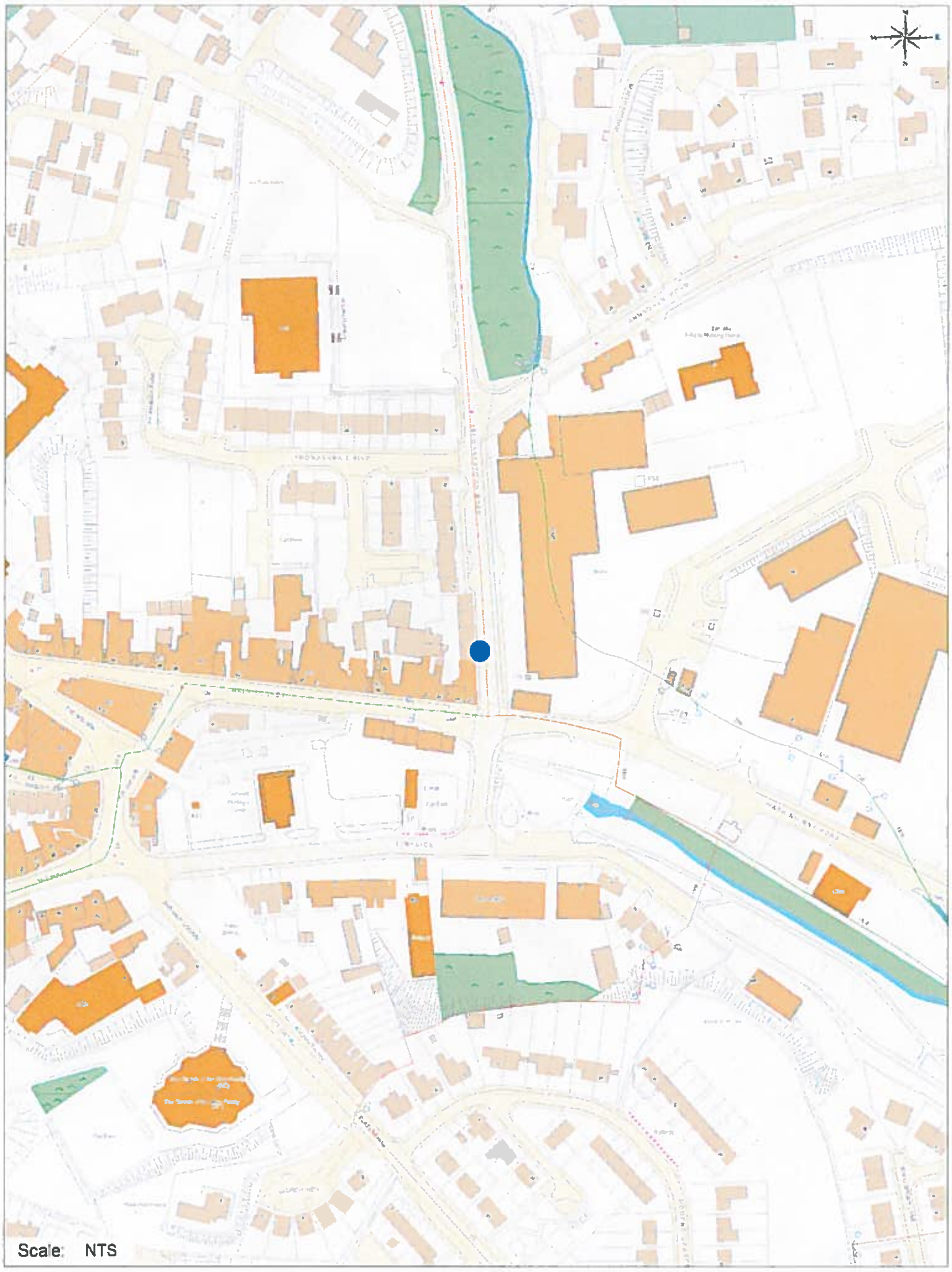
NO2 MONITORING LOCATION MAP

Newell Road, Dungannon (8)

● NO2 Monitoring Point (Passive Diffusion Tube)

Land & Property Services

Dungannon and South Tyrone Borough Council,
Council Offices, Circular Road,
Dungannon BT71 6DT,
Tel: 028 8772 0300, Fax: 028 8772 0368



NO2 MONITORING LOCATION MAP

Stewartstown Road, Coalisland (11)

NO2 Monitoring Point (Passive Diffusion Tube)

DUNGANNON & SOUTH TYRONE Borough Council

Dungannon and South Tyrone Borough Council,
Council Offices, Circular Road,
Dungannon BT71 6DT,
Tel: 028 8772 0300, Fax: 028 8772 0368

Land & Property Services.

DUNGANNON & SOUTH TYRONE Borough Council

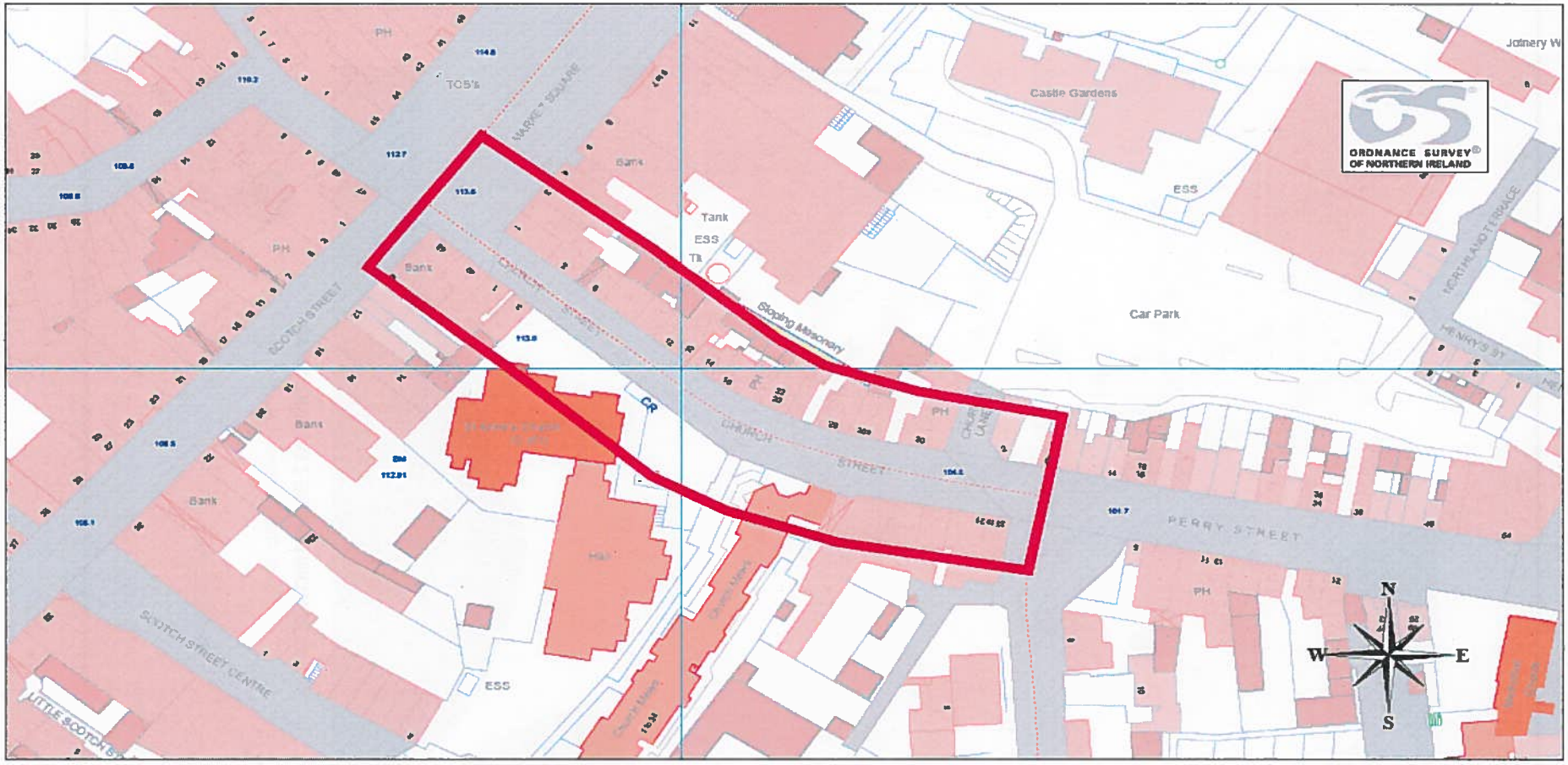
NO2 MONITORING LOCATION MAP

Moy Hill, Charlemont Street, Moy (9)

● NO2 Monitoring Point (Passive Diffusion Tube)

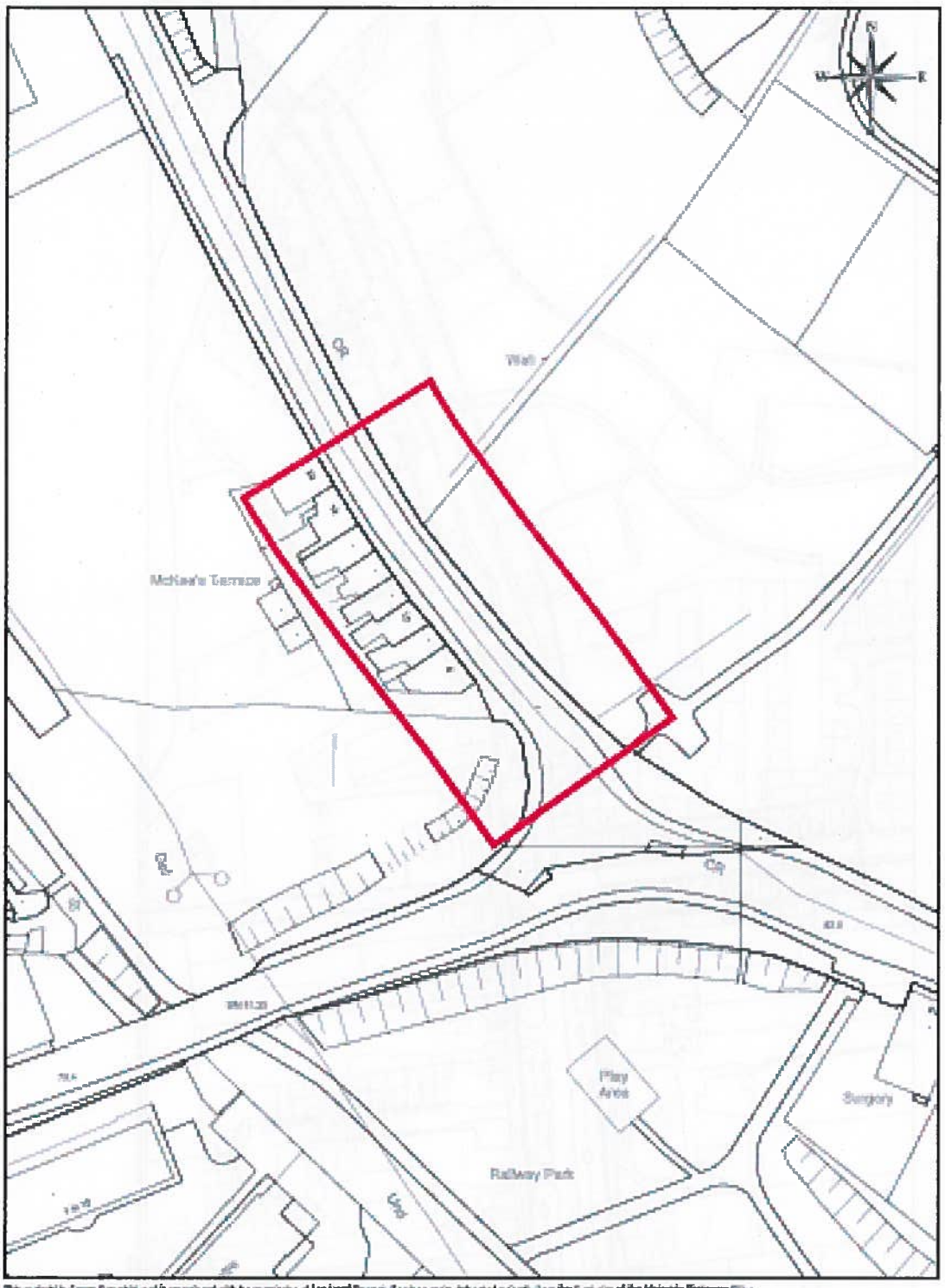
Land & Property Services.

Dungannon and South Tyrone Borough Council,
Council Offices, Circular Road,
Dungannon BT71 6DT,
Tel: 028 8772 0300, Fax: 028 8772 0368



Scale 1:1250

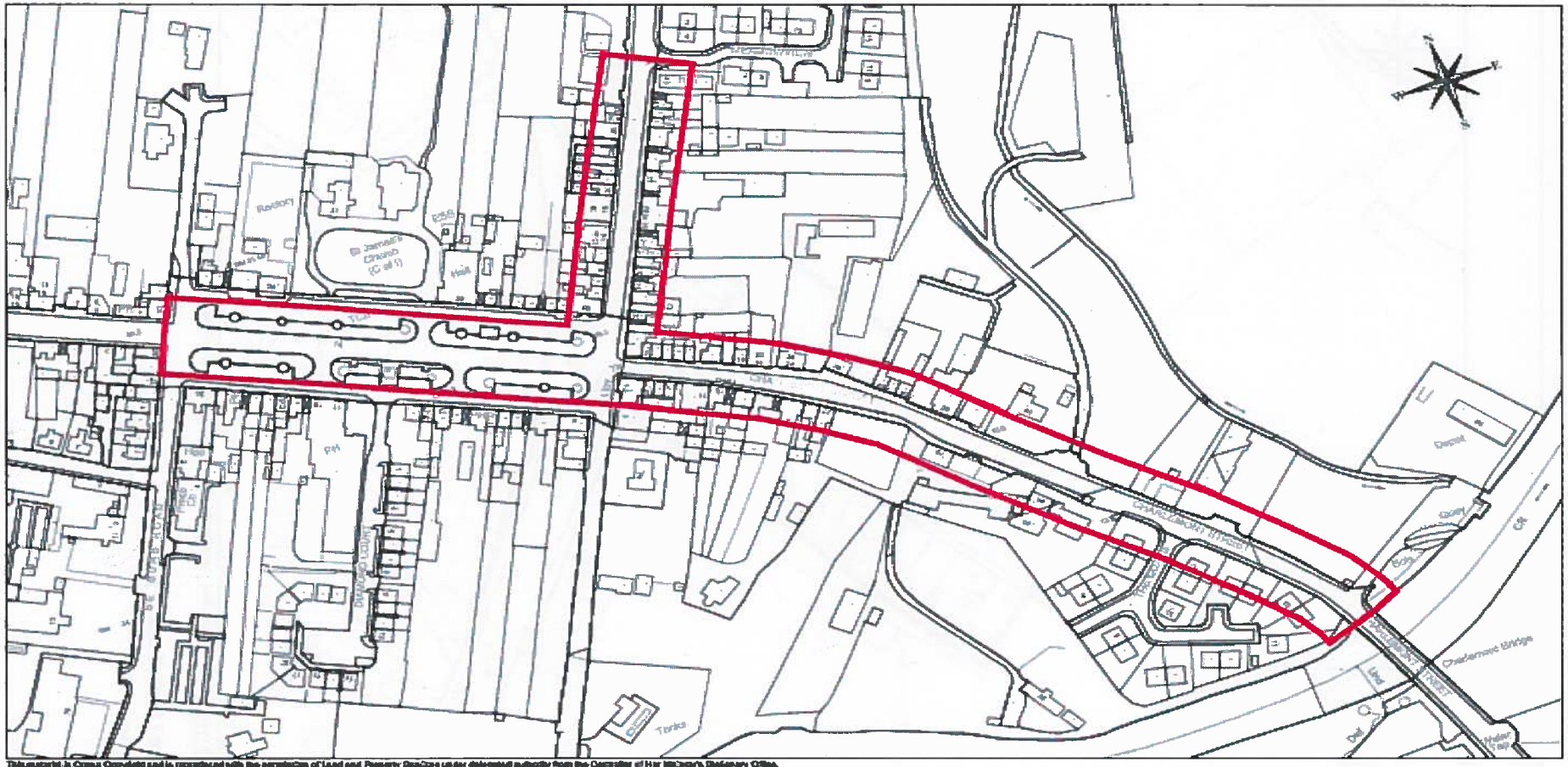
Church Street AQMA 2008



Title : AQMI - Newell Road, Dungannon

Scale : 1 : 1000 (A4)

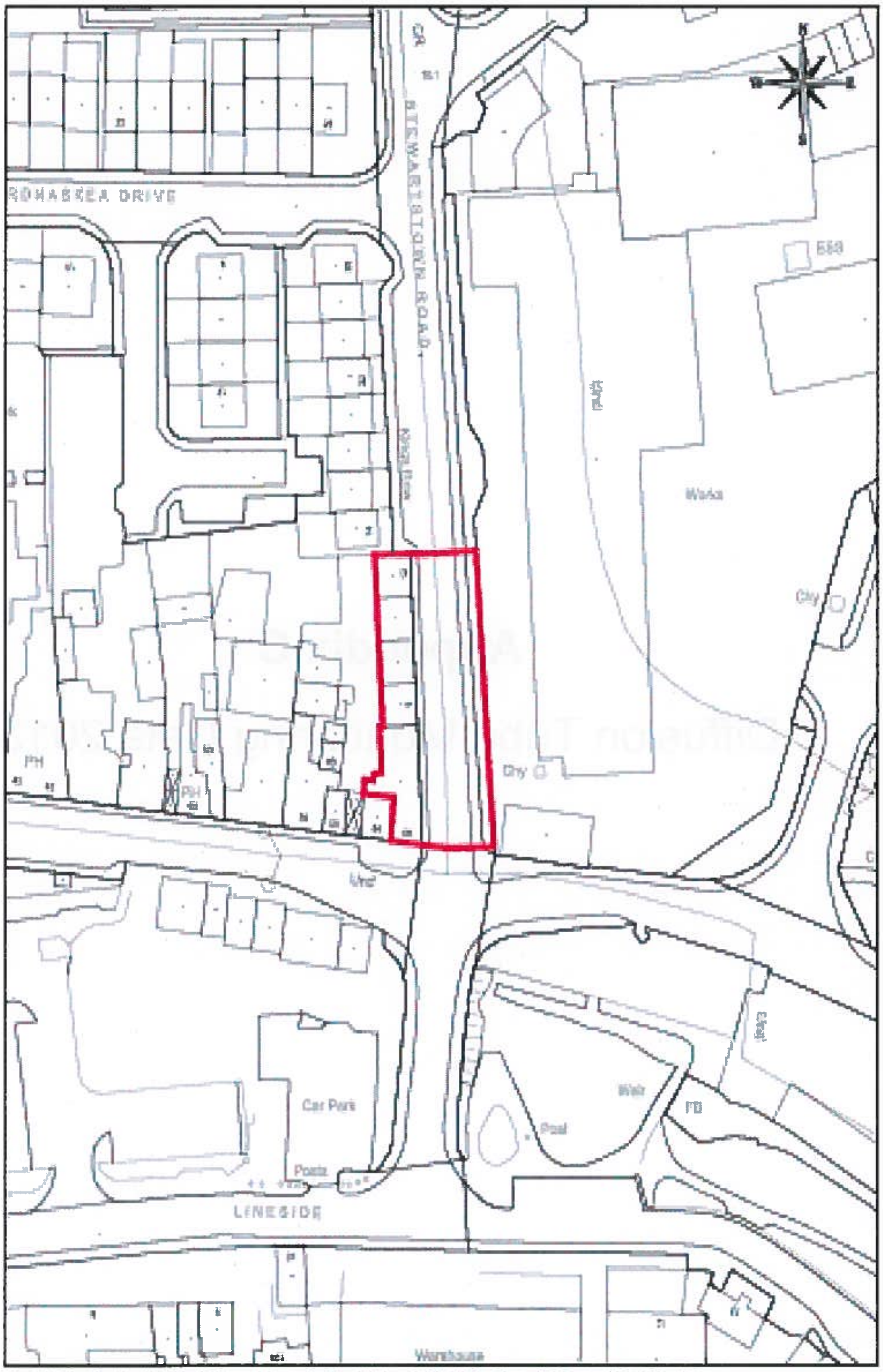
29/05/2012



Title : AQM - Moy

Scale : 1 : 2500 (A4)

23/05/2012



Title : AGM - Stewartstown Road, Coalisland

Scale : 1 : 1000 (A4)

23/05/2012

Appendix C

Diffusion Tube Monitoring Data 2013

NO2 DIFFUSION TUBE RESULTS 2013 (µg/m^3)										
	Market Square	Dungannon Road (Coalisland)	Ardgannon	Church St Mews	Church St Takeaway	Church St St Annes	Chruch St Junction	Newell Road	Moy	Stewartstown Road (Coalisland)
JANUARY	25	47	26	37	41	46	73	77	83	65
FEBRUARY	25	51	20	46	45	36	56	67	66	47
MARCH	21	51	18	43	37	37	56	69	50	34
APRIL	26	44	14	50	44	35	58	67	79	39
MAY	23	32	8	38	31	29	41	54	63	39
JUNE	22	40	11	46	35	27	55	67	73	39
JULY	24	40	8	43	30	26	50	65	69	39
AUGUST	25	34	9	42	38	23	47	54	75	41
SEPTEMBER	25	40	15	55	44	28	57	64	71	39
OCTOBER	30	49	15	50	38	33	59	67	70	52
NOVEMBER	32	45	15	54	43	32	67	76	83	34
DECEMBER	25	50	14	47	22	32	46	49	56	48
AVERAGE	25	44	14	46	37	32	55	65	70	43
Adjusted Ave	20	35	12	37	30	26	44	52	56	34