



## Report of the Cabinet Member for Environment & Infrastructure Management

Natural Environment Scrutiny Performance Panel – 16 December 2019

### Local Air Quality Management Update Report

<b>Purpose:</b>	To brief/update the Natural Environment Scrutiny Performance Panel
<b>Content:</b>	An update on air pollution monitoring in Swansea
<b>Councillors are being asked to:</b>	Consider the information provided and give views
<b>Lead Councillor:</b>	Councillor Mark Thomas, Cabinet Member for Environment & Infrastructure Management
<b>Lead Officer &amp; Report Author:</b>	Tom Price Team Leader Pollution Control and Private Sector Housing Tel: 01792 635600 E-mail: <a href="mailto:tom.price@swansea.gov.uk">tom.price@swansea.gov.uk</a>

#### 1. Air Quality in Swansea Council

- 1.1 Swansea Council submits an Annual Progress Report (APR) to Welsh Government each year advising upon the assessment of ambient air quality in accordance with the EU objective concentrations. The conclusions reached, for 2018, are that the objectives for benzene, lead and sulphur dioxide have been met and that there is no requirement to proceed any further in reporting upon these pollutants. The Council no longer monitors for benzene and lead and currently has two monitoring locations for sulphur dioxide.
- 1.2 Ozone is monitored at four sites in Swansea. Compliance with the 8-hour mean UK objective (not set in regulation) has been seen during 2018 at Hafod and Morryston. However, the Cwm Level Park (12 times) and St. Thomas sites (32 times) have reported concentrations in excess of  $100\mu\text{g}\text{m}^{-3}$  more than 10 times a year.
- 1.3 The Council participates in the UK Heavy Metals Monitoring Network and there are two UK Heavy Metal Network funded monitoring sites, one in Coedgwilym Cemetery and one in Morryston. These sites will remain and have confirmed continued and ongoing compliance with the EU target value for nickel.

- 1.4 All monitoring sites remain compliant with both the annual mean and daily mean exceedance (35 days permitted) for particulate matter PM<sub>10</sub>.
- 1.5 The main pollutant of interest, for exceeding the National air quality objective concentration in Swansea, is Nitrogen Dioxide (NO<sub>2</sub>), for the annual mean objective of 40µgm<sup>-3</sup>. The latest monitoring data from 2018, indicates that concentrations are continuing to decrease from those in 2017 and are following a downward trend over the last five years. There are currently no monitoring locations in excess of the annual mean NO<sub>2</sub> National air quality objective at locations within Swansea. Welsh Government has appraised and accepted the 2019 APR, the document can be viewed via the following [https://www.swansea.gov.uk/media/34309/Progress-Report-2019/pdf/Swansea\\_Annual\\_Progress\\_Report\\_2019.pdf](https://www.swansea.gov.uk/media/34309/Progress-Report-2019/pdf/Swansea_Annual_Progress_Report_2019.pdf)
- 1.6 The Council is currently updating the Draft Air Quality Action Plan, submitted to Welsh Government in 2018, with a view to going out to public consultation in Spring 2020.

## **2. Actions to Improve Air Quality**

- 2.1 The opening of the Morfa Distributor Road and the implementation of the Nowcaster system within the Hafod area, have led to reductions in NO<sub>2</sub> being recorded along Neath Road in 2017 and 2018. Recent junction improvement works carried out on Gower Road, in Sketty, are also indicating a positive effect upon concentrations of NO<sub>2</sub> recorded. Data can be seen in Appendix A.
- 2.2 The Council is looking to test Green Infrastructure works, such as 'living screens', at a site in order to gather data to look at policy development at exposure sites of interest. This project has now progressed to the pre-procurement stage as funding has been obtained via the Council's Conservation Team and their Green Infrastructure Programme.
- 2.3 Council Officers take an active role within the Welsh Air Quality Forum (WAQF) <https://airquality.gov.wales/> engaging with experts to share and learn from best practice.
- 2.4 The Council is taking part in collaborative research with Swansea University to work towards developing interventions, in areas of 'public health interest'. Research, carried out with Swansea University, includes testing behaviour change messages at busy road junctions and specifically looks at the potential effects of engine idling at junctions on local air quality.
- 2.5 The Council has a clause in contracts for vehicles that are contracted by the council, for example school buses. This clause requires that vehicles parked on any public highway, where the layover time exceeds ten minutes, should turn off their engines.

- 2.6 Collaborative works have led to the Council being involved in a research project looking at the digital environment in the City Centre, focusing on the collection of Air Quality, Noise and Parking data. This project commenced in April 2019.
- 2.7 NO<sub>2</sub> monitoring is currently being carried out in the vicinity of the following schools:
- 2.7.1 Bishop Gore Comprehensive – All monitoring data compliant for 2018. See Appendix A for data from the APR 2019.
- 2.7.2 Brynhyfryd Primary – All monitoring data compliant for 2018. See Appendix B for data from the APR 2019.
- 2.7.3 Gorseinon Infants – All monitoring data compliant for 2018. See Appendix C for data from the APR 2019.
- 2.7.4 Morryston Primary – The site, which has been operational since September 2000, is located on Wychtree Street and has returned compliant annual mean data for many years. See Appendix D for data from the APR 2019.
- 2.7.5 Oystermouth Primary (New location)
- 2.7.6 Penllergaer Primary – All monitoring data compliant for 2018. See Appendix E for data from the APR 2019.
- 2.7.7 Waunarlwydd Primary – All monitoring data compliant for 2018. See Appendix F for data from the APR 2019.
- 2.7.8 Ysgol Gynradd Gymraeg Lon Las – Monitoring commenced in February 2019. Provisional mean data for NO<sub>2</sub> from February 2019 to November 2019 is 11.5ugm<sup>-3</sup>. Whilst this site has not been monitoring for the full calendar year the provisional mean is indicating compliance with the annual mean objective concentration of 40ugm<sup>-3</sup>, will be achieved.

### **3. Key Points Summary**

- 3.1 The Council intends to continue monitoring the pollutants detailed in this report. The assessment of locations for NO<sub>2</sub> diffusion tube monitoring will continue and sites returning low concentrations will be closed down in order to allow new sites to be created to enhance the quantitative data available.
- 3.2 The draft Air Quality Action Plan will be issued for public consultation in 2020 and the Council will work with all interested parties to implement schemes/works to achieve Welsh Government's aims to maintain compliance and further reduce public health exposure to pollutants.

- 3.3 Real-time monitoring data is available via <http://swansea.airqualitydata.com/> and data can be downloaded from this site. A review of this site is scheduled for the first quarter of 2020. The Council's data can also be viewed and downloaded via the Welsh Air Quality Forum website <https://airquality.gov.wales/>

#### **4 Legal implications**

- 4.1 None

#### **5. Finance Implications**

- 5.1 Revenue to fund the monitoring detailed in this report is contained within existing budgets.

#### ***Glossary of terms:***

APR – Annual Progress Report

NO<sub>2</sub> – Nitrogen Dioxide

ugm<sup>-3</sup> – micrograms per metre cubed

PM<sub>10</sub> – Particulate Matter <10microns

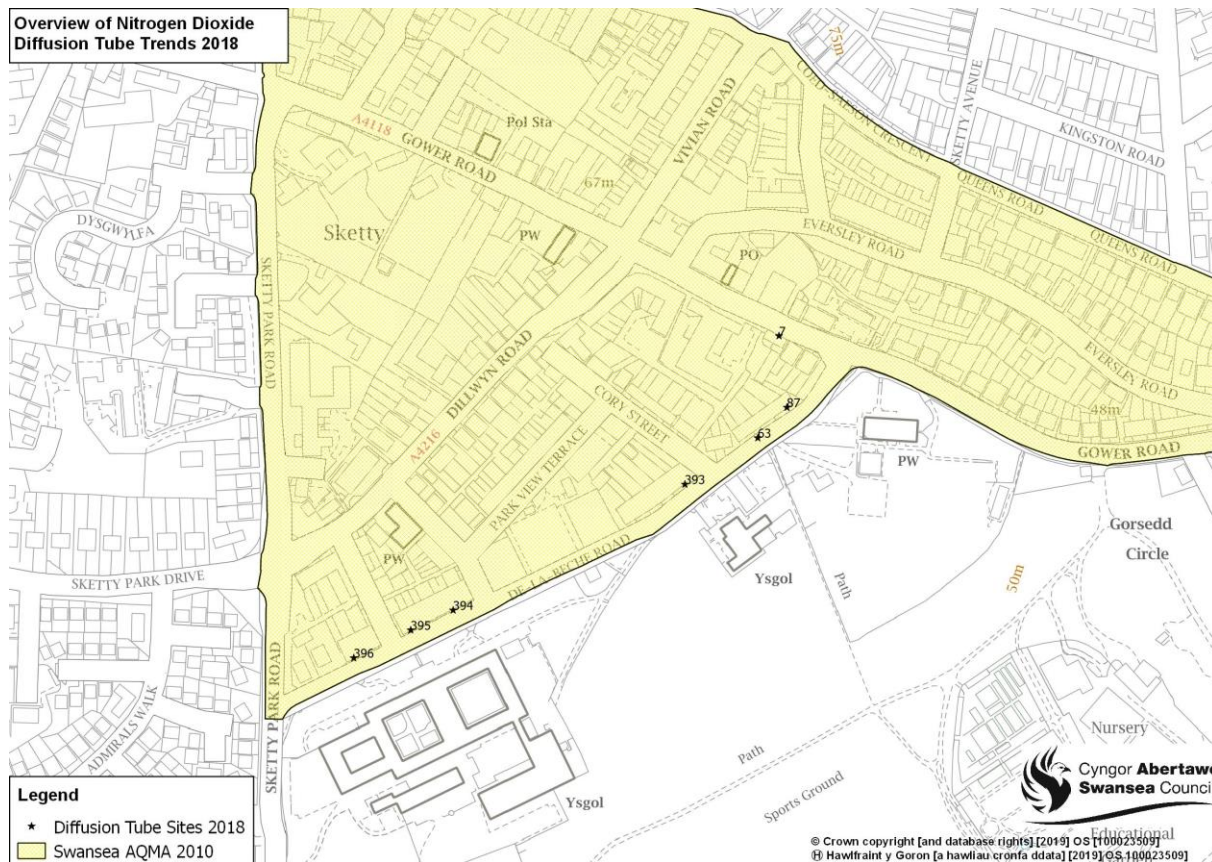
WAQF – Welsh Air Quality Forum

#### **Background papers:**

None

## Appendix A - Bishop Gore Comprehensive

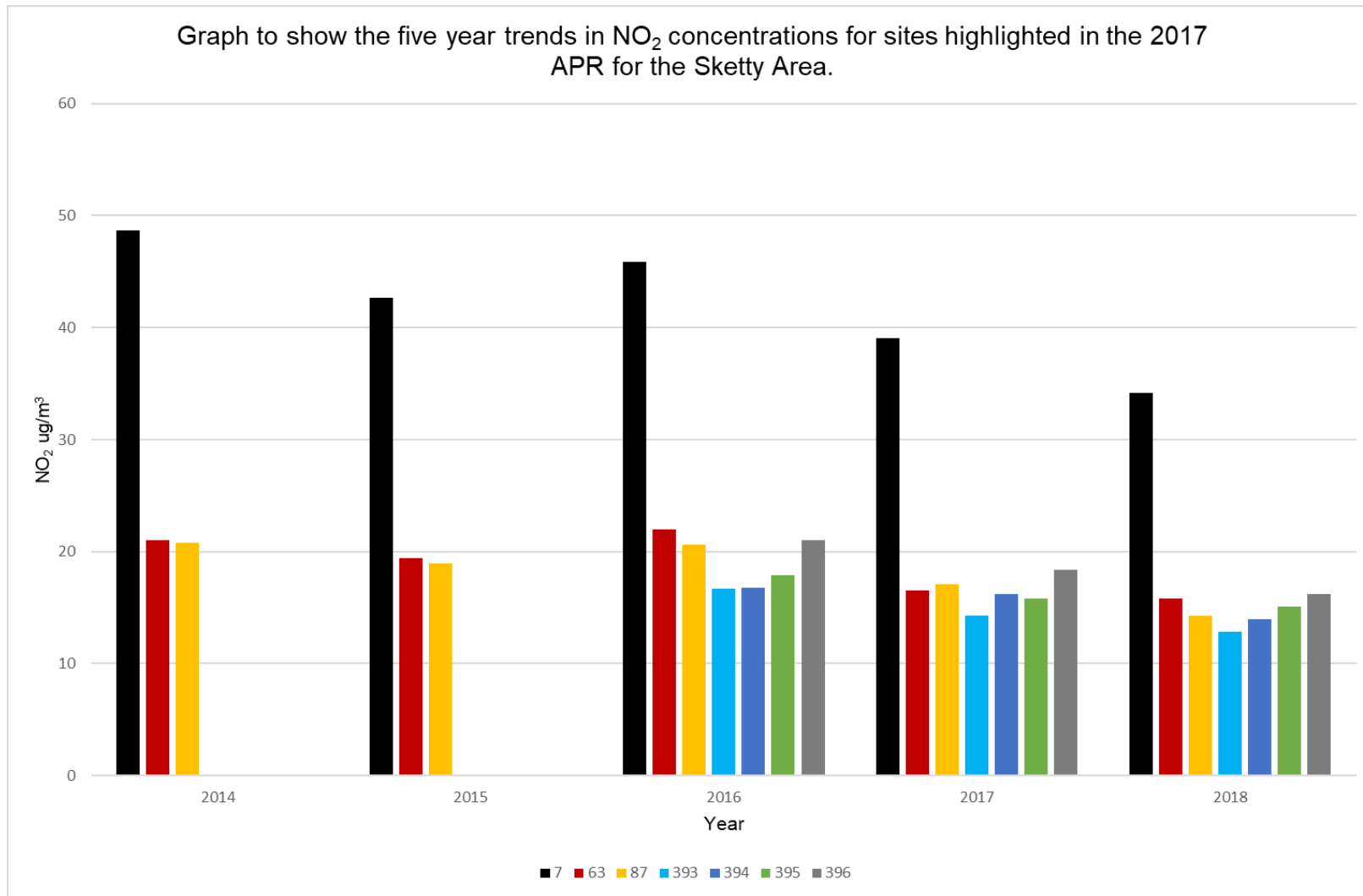
### Figure 2.3.1.11 - Map to show Overview of Nitrogen Dioxide Diffusion Tube Trend Sketty Locations 2018



The NO<sub>2</sub> data for the sites is shown in figure 2.3.1.12, below, indicates continued compliance with the Annual Mean Objective Concentration. The diffusion tubes along De La Beche Road also continue to show a reduction in concentration and compliance with the Annual Mean Objective Concentration for the residential exposure.

The monitoring sites on Gower Road, Sketty will remain along with the sites on De La Beche Road in order to create a long-term dataset to assess the effects of the new junction upon the surrounding environment.

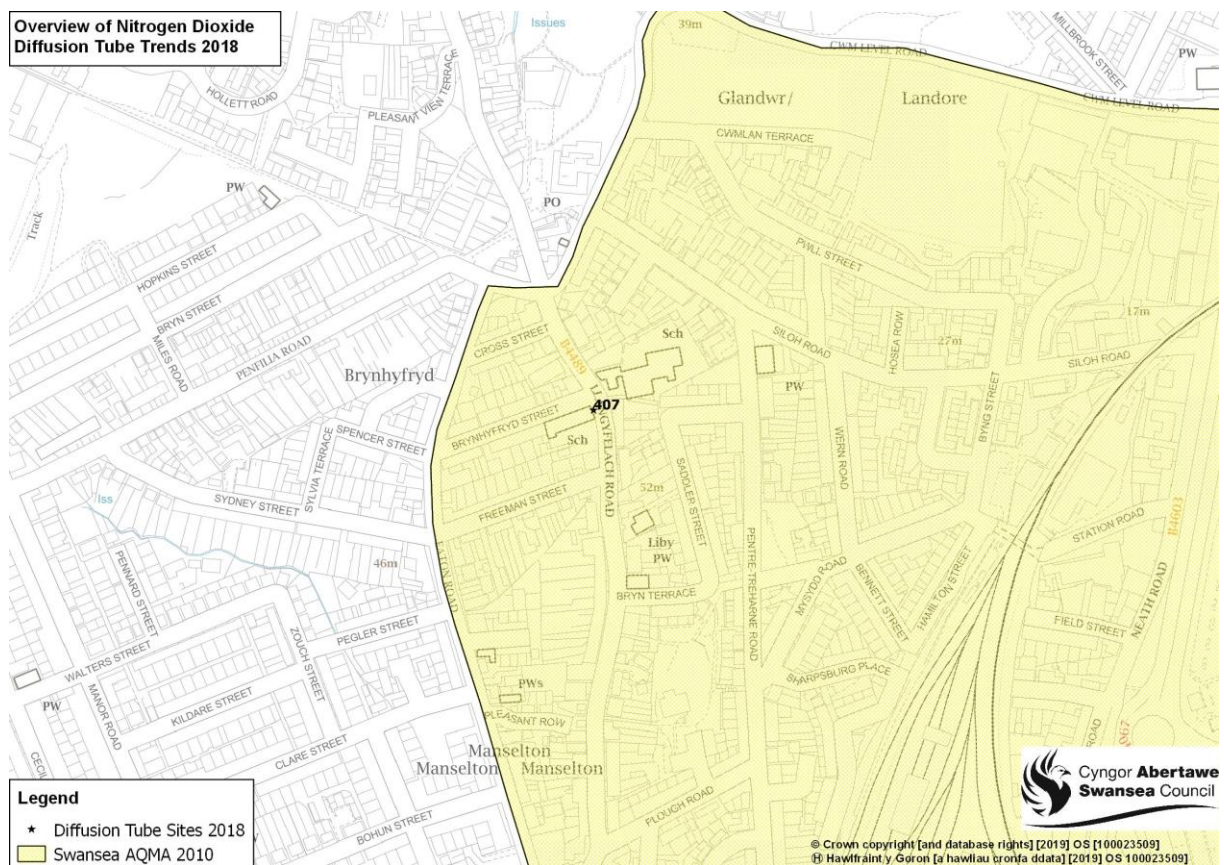
**Figure 2.3.1.12 – Trends in Annual Mean NO<sub>2</sub> Concentrations**



## Appendix B - Brynhyfyd Primary

Figure 2.3.1.30 shows the new site located outside Brynhyfyd Infants School, Llangyfelach Road, Swansea. The B4489 is a busy section of road with an Annualised Average Daily Traffic of 12,744 in 2018. This data is obtained from the Automatic Traffic Counter located on Llangyfelach Road approximately 600m to the south. Brynhyfyd Junior School is located opposite the site, but is set further back from the highway and so the monitoring location chosen was felt to be representative of both the annual mean and Hourly Objective Concentrations. This site was set up in order to respond to queries raised by Friends of the Earth regarding pollutant concentrations due to a short survey they carried out in the area.

**Figure 2.3.1.30 - Map to show Diffusion Tube Site 407**



Monitoring at the site commenced in April 2017 and achieved 75% (9 out of 12 months) exposure for 2017. The annual mean returned was  $20.79\mu\text{g}\text{m}^{-3}$ . The site achieved 100% exposure for 2018 and reported an annual mean concentration of  $19.38\mu\text{g}\text{m}^{-3}$ . This site has been established to look at both the annual and hourly exposure, as it is located on the façade of a primary school. Data will continue to be collected here and further monitoring studies are being developed with collaborative partners to further assess the exposure in this area.

## Appendix C - Gorseinon Infants



Site ID	Site Type	Monitoring Type	Valid Data Capture 2018 (%) <sup>(2)</sup>	NO <sub>2</sub> Annual Mean Concentration (µg/m <sup>3</sup> ) <sup>(3)</sup>				
				2014	2015	2016	2017	2018
295*	Roadside	Diffusion Tube	91.67	30.70	28.50	31.70	26.79	23.69
296	Roadside	Diffusion Tube	100	35.59	31.10	36.27	31.25	28.19

\*Distance corrected to Nearest Exposure (Façade)



## Appendix D - Morriston Primary

Morriston Groundhog station has been operational since September 2000 and is located adjacent to the southbound slip road to the busy A4067 dual carriageway at Morriston Underpass. To the left of the site and on the opposite side of the dual carriageway is Morriston Primary School. The school buildings abut the red brick retaining wall to the northbound Morriston slip road exit. The A4067 carries on for approximately one mile northbound where it meets the M4 motorway at junction 45. The station has been given a site classification Roadside. Figure 2.1.1.2 below is an aerial view of the site and the surrounding locations.

All equipment is housed within an air-conditioned unit and operates continuously. The equipment comprises of Advanced Pollution Instruments (API) real-time analysers measuring ozone and NO<sub>2</sub>.

**Figure 2.1.1.2 - Aerial view - Morriston Groundhog**

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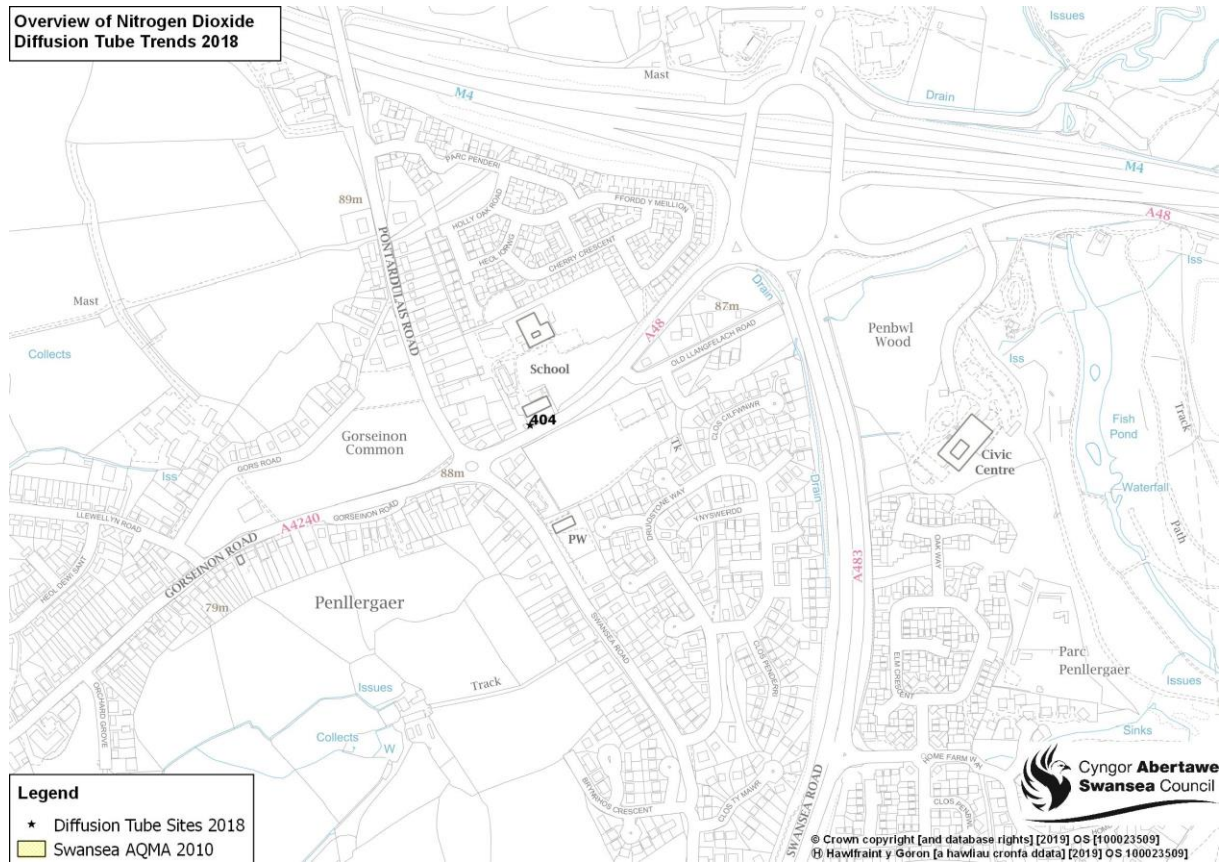
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Site Type	Monitoring Type	Valid Data Capture 2018 (%) <sup>(2)</sup>	NO <sub>2</sub> Annual Mean Concentration (µg/m <sup>3</sup> ) <sup>(3)</sup>				
			2014	2015	2016	2017	2018
Roadside	Automatic	99.94	21.1	20.5	22.3	20.6	18.1

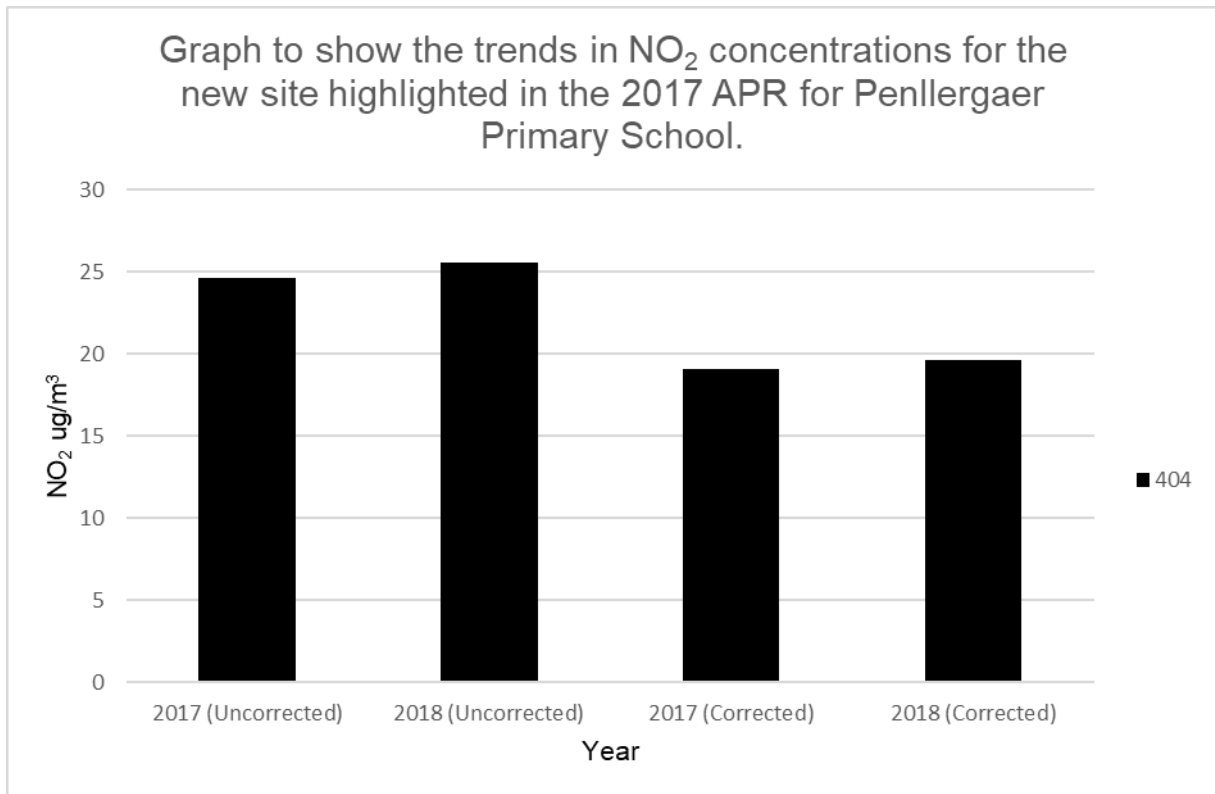
## Appendix E - Penllergaer Primary

Figure 2.3.1.24 shows site 404 that commenced monitoring on 3<sup>rd</sup> March 2017. This site was selected in order to answer a local Ward Member’s query regarding pollutant concentration at the Primary School on Gorseinon Road and the potential exposure of school children at peak periods.

**Figure 2.3.1.24 - Map to show Diffusion Tube site 404.**



**Figure 2.3.1.25 to show the NO<sub>2</sub> ug<sup>m</sup>-<sup>3</sup> data for site 404**



The monitoring location is sited at the fence line of the school. The annual mean concentration of 40ugm<sup>-3</sup> for NO<sub>2</sub> relates to a façade concentration. The data for this site is displayed as a distance uncorrected annual mean, to assess against the hourly NO<sub>2</sub> Objective Concentration and as the distance corrected façade annual mean. As the table shows, the site is in compliance with the Objective Concentrations. Monitoring will continue at this location in 2019 and will then be reassessed.

## Appendix F - Waunarlydd Primary

Sites 422 and 423 commenced monitoring on 6<sup>th</sup> December 2018. These locations were created due to a request from a local Ward Member regarding air quality and the local primary school. The data presented below in table 2.3.1.5 displays the annualised distance uncorrected concentration to assess for the one hour exposure concentration and the distance corrected concentration to assess for the annual mean exposure at the nearest façade.

**Table 2.3.1.5 shows the annualised concentrations for 2018, both uncorrected and corrected distance.**

	422	423
Uncorrected 2018	18.09	13.64
Corrected 2018	13.54	8.64

Monitoring will continue in 2019 to obtain a more accurate result.

**Figure 2.3.1.35 - Map to show Diffusion Tube Sites 422 and 423**

