



# AIR POLLUTION SERVICES

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## Pont Rhyd-y-Cyff, Maesteg

## Air Quality Site Feasibility Report

Date: 28 September 2020

**Client:** Jehu Project Services Ltd

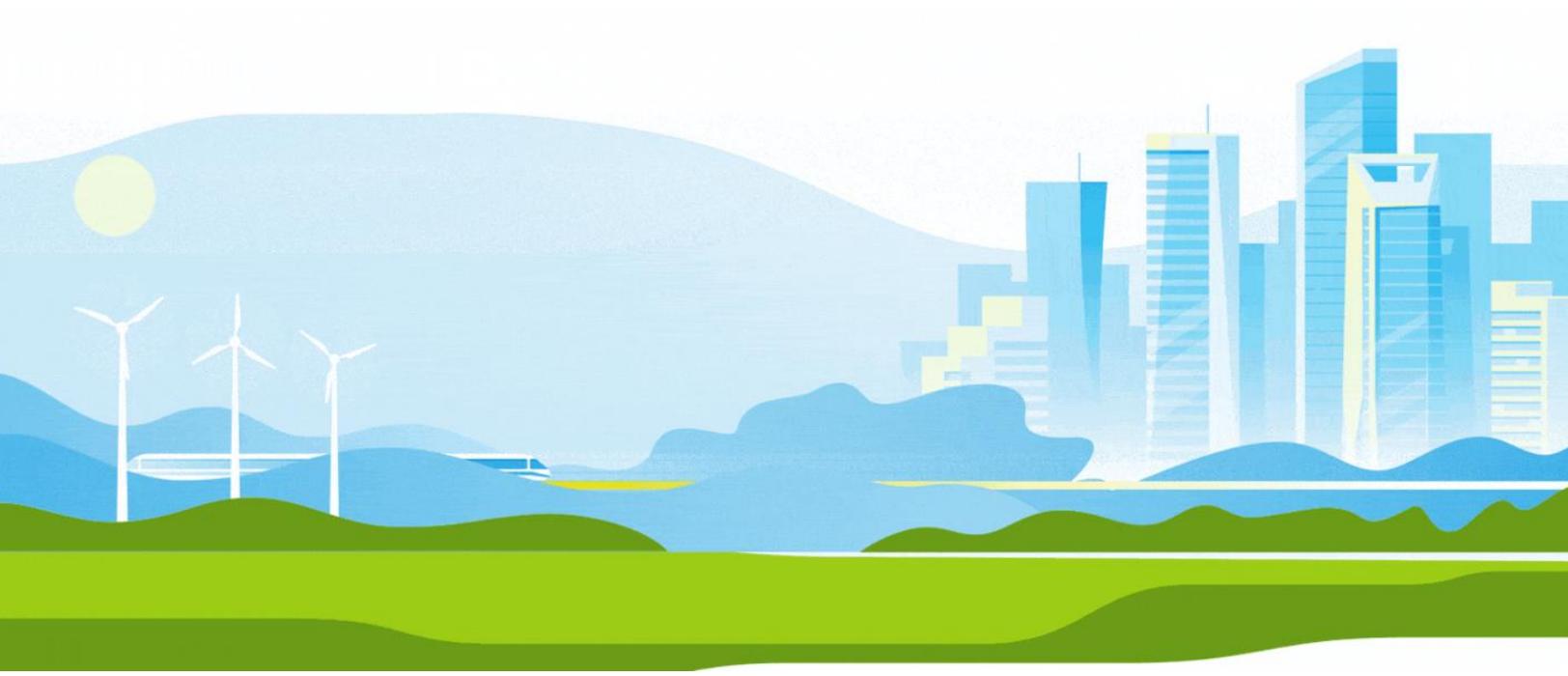
**Contact:** Ellena Hodges

**Reference:** B1003\_A\_1

**Date:** 28 Sep 2020

**Author:** Dr Austin Cogan

**Approver:** Kieran Laxen



## Executive Summary

Item	Outcome
Distance to nearest AQMA	Over 1.5 km away
Background air quality	Below limits
Defra and the Welsh Assesmbly estimated roadside air quality	Below limits
Local measured air quality	No sites within 1.5 km
Nearby permitted industrial or waste sites	No
Nearby designated ecological sites	Yes

### Overall Level of Recommended Mitigation



**Low-Medium**

**Site specific mitigation recommended**

### Site Location



**Site Location**

Imagery ©2020 Google. Map data ©2020.

### Contact Details

For further information, support and advice, please contact Air Pollution Services. Air Pollution Services can provide air quality assessments for submission with planning applications along with advice and support in terms of design, mitigation and development with regards to air quality.

Tel: 0117 911 2434

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No modelling has been carried out as part of this risk assessment and the note is based on estimates and professional experience. This is not to be used for submission to support any planning or permitting application.

The development is expected to generate additional traffic on local roads, which may impact local sensitive receptors. Air quality for future occupants of the development itself has also been considered.

### Air Quality Assessment Levels

The baseline is considered in relation to the relevant air quality assessment levels (AQAL) set out in Table 2. The AQALs consist of the national air objectives (AQO), limit values and Environment Agency's Environmental Assessment Levels (EALs).

**Table 2: Air Quality Assessment Levels (AQOs, Limit Values)**

Pollutant	Time Period	AQO / Limit Value	Concentration, and the number of exceedences allowed per year (if any)	Date AQO / Limit Value to be Achieved From and Maintained After
Nitrogen Dioxide (NO <sub>2</sub> )	1-hour Mean	AQO / Limit Value	200 µg/m <sup>3</sup> not to be exceeded more than 18 times a year	31st December 2005 / 1st January 2010
	Annual Mean	AQO / Limit Value	40 µg/m <sup>3</sup>	31st December 2005 / 1st January 2010
Fine Particles (PM <sub>10</sub> )	24-hour Mean	AQO / Limit Value	50 µg/m <sup>3</sup> not to be exceeded more than 35 times a year	31st December 2004
	Annual Mean	AQO / Limit Value	40 µg/m <sup>3</sup>	31st December 2004
Fine Particles (PM <sub>2.5</sub> ) <sup>a</sup>	Annual Mean	AQO / Limit Value	25 µg/m <sup>3</sup>	2020 / 1st January 2015

<sup>a</sup> The PM<sub>2.5</sub> objective is not in Regulations and there is no legal requirement for local authorities to meet it.

The focus of this report is on the annual mean concentrations due to the greater availability of data compared to the short-term (1-hour and 24-hour mean) data. It should be borne in mind that depending on type of location, the annual mean might not be the most stringent assessment level and also may not be strictly applicable for the users of the development.

Previous research carried out on behalf of Defra and the devolved administrations identified that, where the primary source of pollutant emissions is road traffic, exceedences of the 1-hour mean NO<sub>2</sub> AQO are unlikely to occur where the annual mean is below 60 µg/m<sup>3</sup>. Similarly, exceedences of the 24-hour mean PM<sub>10</sub> AQO are unlikely to occur where the annual mean is below 32 µg/m<sup>3</sup>.



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## Relevant exposure

### AQO Receptors

#### *Human-Health*

The annual mean AQO applies at locations where members of the public might be regularly exposed, such as building façades of residential properties, schools, hospitals and care homes.

The 24-hour mean AQO applies at the annual mean locations of exposure and at hotels, residential gardens and any location where members of the public might reasonably be expected to spend 24-hours or longer.

The 1-hour mean AQO applies at the annual mean and 24-hour mean locations of exposure and any outdoor location where members of the public might reasonably be expected to spend one hour or longer, such as busy pavements, outdoor bus stations, locations with outdoor seating and children's play areas.

Places of work like factories or offices are not considered places where members of the public might be regularly exposed and therefore the AQO's do not apply at these locations.

#### *Ecological Receptors*

Nationally (SSSIs, Areas of Special Scientific Interest (ASSIs), National Nature Reserves (NNRs)) and internationally (SAC, SPAs and Ramsar Sites) designated ecological sites are considered relevant receptors for the NOx annual mean critical level, 24-hour mean proxy critical level and annual mean critical loads. Locally designated sites (LNRs, local wildlife sites (LWSs) and areas of AW) are also considered sensitive receptors, however, they are less sensitive to changes and less weight is attributed to these sites.

### Limit Value Receptors

The government models compliance with the Directive at locations 4 m from the kerbside, 2 m high, more than 25 m from major road junctions and adjacent to at least 100 m of road length where the limit value applies.

## Baseline Air Quality Considerations

### AQMAs and Air Quality Emission Zones

Local authorities have a responsibility to investigate air quality within their boundary as part of the Local Air Quality Management (LAQM) regime. Where there is an exceedance of an AQO, the local authority must declare an Air Quality Management Area (AQMA). The local authority is required to work towards improving conditions in these areas. The development is located over 1.5 km from any AQMA. There is thus a low risk that the potential users of the development are unlikely to be exposed to poor existing air quality.

Should the development generate a significant volume of traffic there is a potential the traffic through the AQMA may impact concentrations within the AQMA. Given the size of the development there is low risk of this.

### Permitted sites and other point sources

The Natural Resources Wales regulates sites which are at risk of contributing significantly to pollutant concentrations. The 2017 database (last updated on 1st April 2019) does not identify any regulated sites within 1 km of the development. There is also the potential for other sites which are going through the planning or permitting process in the local area which are not on this list. There is a low risk of combined impacts occurring with other existing or proposed point sources. Sites which are more than 500 m away are unlikely to have a significant risk of combined impacts unless the area is hypersensitive.

### Ecological Sites

Locally to the development there are no locally designated (Ancient Woodlands or local nature reserves) or internationally designated (SAC, SPA or Ramsar) ecological sites within 1.5 km of the development. There is one nationally designated ecological site (SSSI or national nature reserve) within 1.5 km of the development, the Cwm Du Woodlands SSSI, which is located approximately 450 m northeast of the development.

While locally designated and nationally designated ecological sites are sensitive to changes in concentrations, they are unlikely to be the limiting factor for a development.

However, internationally designated ecological sites, in particular, are sensitive to changes in concentrations and are potentially a limiting factor for a planning application. If the development will generate a significant amount of traffic near a European designated ecological site, there will be a risk of air quality being a limiting factor for planning approval. There is a low risk of this being the case for this development.

### Baseline Concentrations

Defra and the Welsh Assesmbly provides estimated average background concentrations on a 1 km x 1 km grid across the UK. These include emissions from a range of sources, such as road transport, rail, industrial facilities, aviation, and shipping. In addition, Defra and the Welsh Assesmbly also provides roadside annual mean nitrogen dioxide concentrations which are used to report exceedances of the limit value (updated 2018).

Many local authorities carry out monitoring as part of the LAQM regime using automatic monitors and passive monitors (diffusion tubes). There are also several other monitoring networks across the country. Where data is available it has been presented in this report.

[Defra background concentrations](#)

Ambient background concentrations of NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> have been taken from the national pollution maps published by Defra. The background concentrations used in this report use the 2017 reference year data for predicting the concentrations for 2020 to 2022 in the immediate vicinity of the development. These are shown in Table 3.

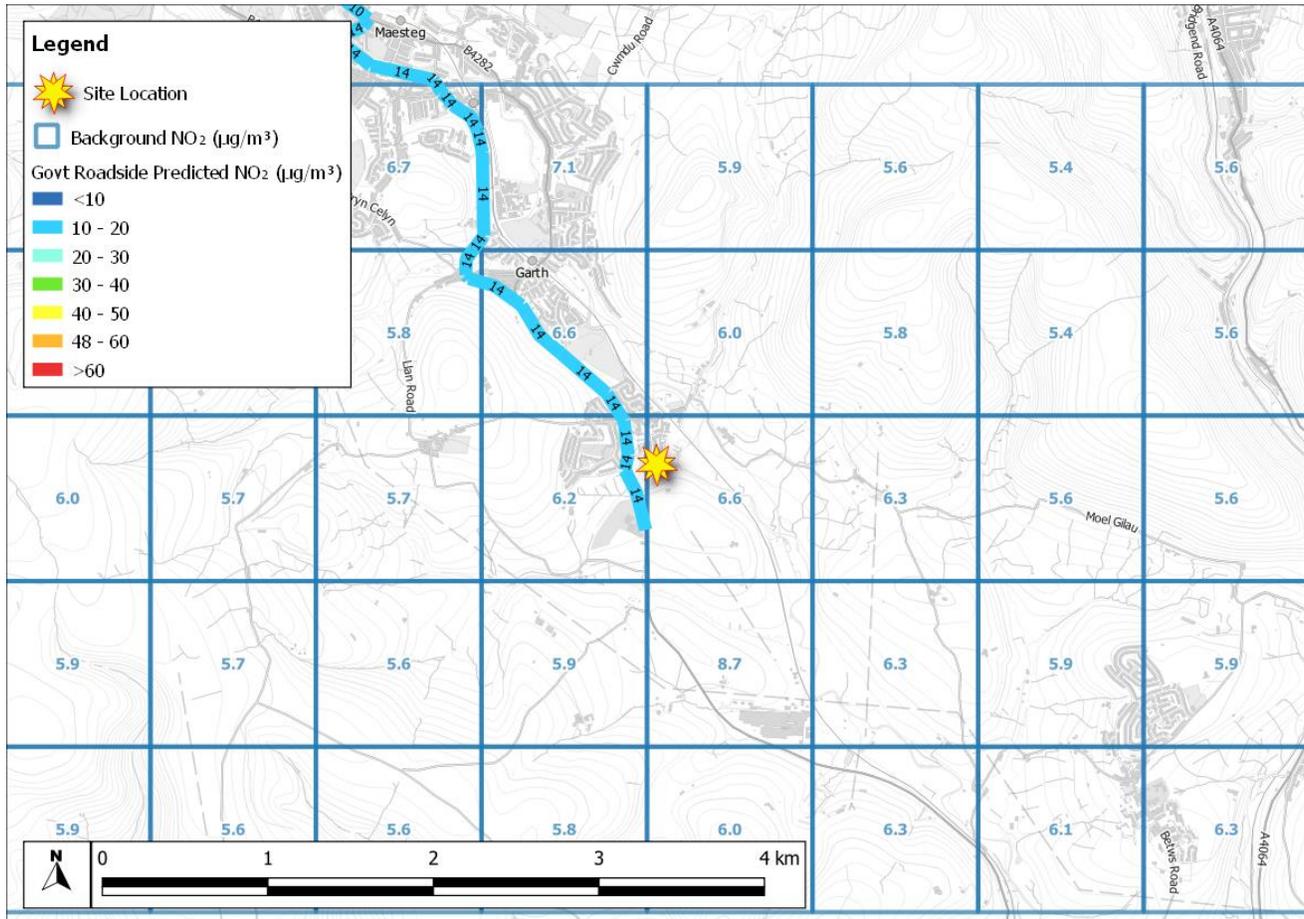
**Table 3: Defra and the Welsh Assesmbly Background Mapped Concentrations (µg/m<sup>3</sup>)**

Pollutant	2020	2021	2022
NO <sub>2</sub>	6.2	6.0	5.8
PM <sub>10</sub>	9.4	9.3	9.2
PM <sub>2.5</sub>	6.3	6.2	6.1

Predicted NO<sub>2</sub> background concentrations are below the AQAL in all years. The concentrations are also shown in Figure 2. Predicted PM<sub>10</sub> background concentrations are below the AQAL in all years. The concentrations are also shown in Figure 3. Predicted PM<sub>2.5</sub> background concentrations are below the AQAL in all years. The concentrations are also shown in Figure 4.

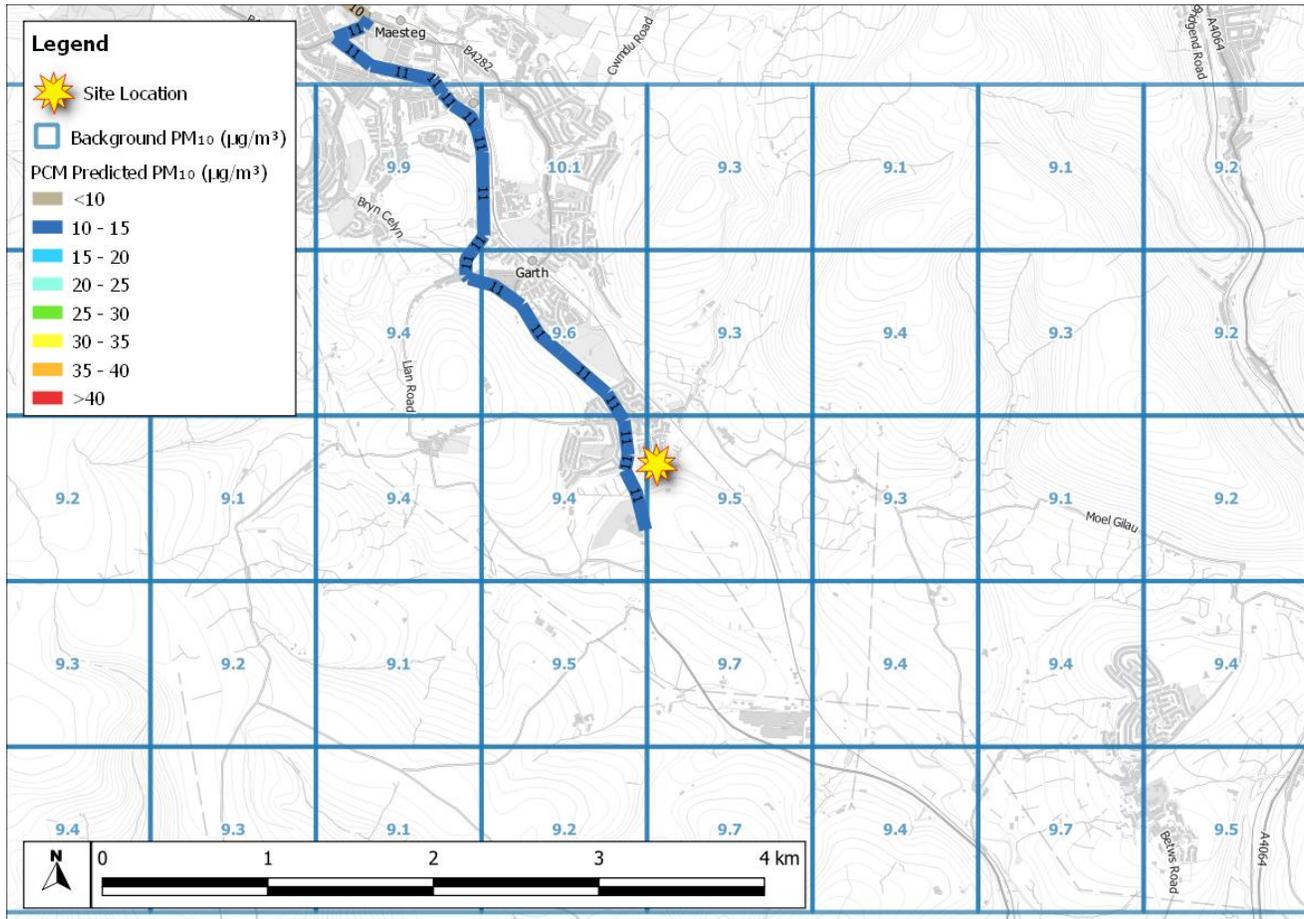
[Defra and the Welsh Assesmbly roadside concentrations](#)

The roads for which Defra and the Welsh Assesmbly has predicted concentrations are also shown and NO<sub>2</sub> concentrations at nearby major roads are predicted to be approximately 14.2 µg/m<sup>3</sup> at locations near to the development. These predictions represent locations 4 m back from the roadside which may also represent concentrations at relevant receptors, although concentrations at specific receptor locations may be higher. Furthermore, it should also be noted that it is widely accepted that in many locations Defra and the Welsh Assesmbly has underpredicted roadside concentrations when compared with local monitoring. Although these Defra and the Welsh Assesmbly roadside estimates should be treated with caution, they do provide some useful information. The concentrations for NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> are shown in Figure 2, Figure 3 and Figure 4, respectively.



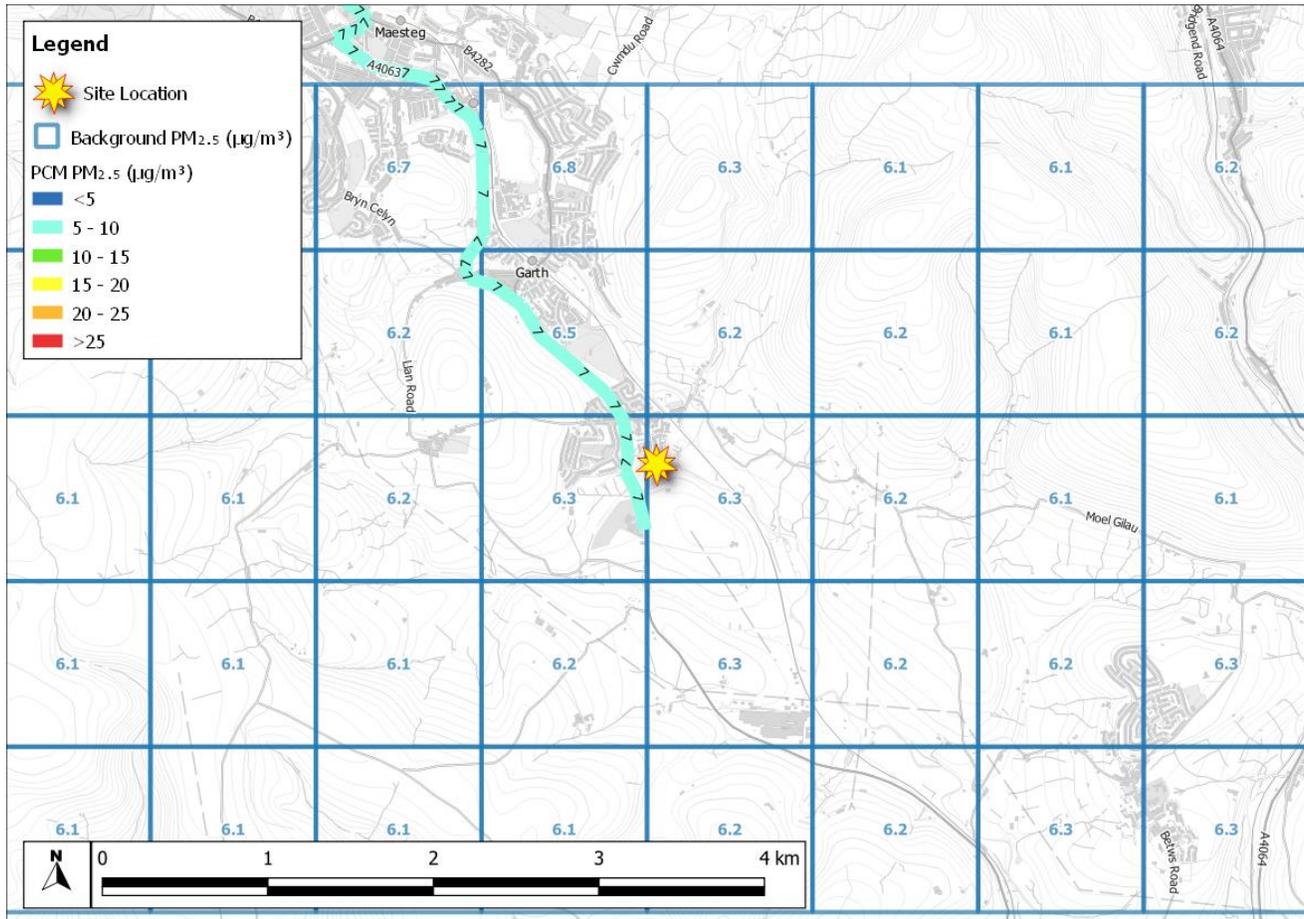
**Figure 2: Government published predictions of NO<sub>2</sub> for 2020**

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**Figure 3: Government published predictions of PM<sub>10</sub> for 2020**

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**Figure 4: Government published predictions of PM<sub>2.5</sub> for 2020**

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### Local Air Quality Monitoring

Local authority NO<sub>2</sub> monitoring sites operated as part of the LAQM regime, within the vicinity of the development, are presented in the figures at the end of the report. The nearest monitoring site is located 3.2 km from the development and most recently measured an annual mean NO<sub>2</sub> concentration of 25.1 µg/m<sup>3</sup>, well below the AQAL.

There are 16 monitoring sites within 10 km, the measured annual mean NO<sub>2</sub> concentrations for the ten nearest monitoring sites are presented in Table 4.

**Table 4: Local Authority NO<sub>2</sub> Monitoring (µg/m<sup>3</sup>)**

Local Authority	Site ID – Name (Type)	Measurement	Distance
Bridgend Council	OBC-083 - Castle Street, Maesteg (Urban Centre / Roadside)	25.1	3.2 km
Bridgend Council	OBC-081 - Talbot Street, Maesteg (Urban Centre / Roadside)	21.4	3.2 km
Bridgend Council	OBC-082 - Castle Street, Maesteg (Urban Centre / Roadside)	23.4	3.2 km
Bridgend Council	OBC-080 - Commercial Street, Maesteg (Urban Centre/ Kerbside)	23.9	3.2 km
Bridgend Council	OBC-100 - Coity Road, Bridgend (Roadside)	24.1	9.1 km
Bridgend Council	OBC-099 - Coity Road, Bridgend (Roadside)	23.8	9.2 km
Bridgend Council	OBC-098 - Coity Road, Bridgend (Roadside)	24.0	9.3 km
Bridgend Council	OBC-097 - Coity Road, Bridgend (Roadside)	26.3	9.3 km
Bridgend Council	OBC-069 - Tondu Rd Steps (Roadside)	30.0	9.3 km
Bridgend Council	OBC-048 - Tondu Road Roundabout, Bridgend (Roadside)	38.1	9.3 km
<b>AQAL</b>		<b>40</b>	

There are no sites measuring PM<sub>10</sub> concentrations within 10 km.

There are no sites measuring PM<sub>2.5</sub> concentrations within 10 km.

#### Other Air Quality Monitoring

Defra's automatic urban and rural network (AURN) monitoring sites measure pollutant concentrations across the UK.

#### AURN Monitoring

National Government NO<sub>2</sub> monitoring sites, operated as part of the AURN regime, within the vicinity of the development are presented in the figures at the end of the report. The nearest monitoring site is located 9.7 km from the development and most recently measured an annual mean NO<sub>2</sub> concentration of 12.0 µg/m<sup>3</sup>, well below the AQAL.

The measured annual mean NO<sub>2</sub> concentrations for monitoring sites within 10 km are presented in Table 5.

**Table 5: National Government NO<sub>2</sub> Monitoring (µg/m<sup>3</sup>)**

Site ID – Name (Type)	Measurement	Distance
PT4 - Port Talbot Margam (Industrial Urban)	12.0	9.7 km
<b>AQAL</b>	<b>40</b>	

National Government PM<sub>10</sub> monitoring sites, operated as part of the AURN regime, within the vicinity of the development are presented in the figures at the end of the report. The nearest monitoring site is located 9.7

km from the development and most recently measured an annual mean PM<sub>10</sub> concentration of 24.0 µg/m<sup>3</sup>, well below the AQAL.

The measured annual mean PM<sub>10</sub> concentrations for monitoring sites within 10 km are presented in Table 6.

**Table 6: National Government PM<sub>10</sub> Monitoring (µg/m<sup>3</sup>)**

Site ID – Name (Type)	Measurement	Distance
PT4 - Port Talbot Margam (Industrial Urban)	24.0	9.7 km
AQAL	40	

National Government PM<sub>2.5</sub> monitoring sites, operated as part of the AURN regime, within the vicinity of the development are presented in the figures at the end of the report. The nearest monitoring site is located 9.7 km from the development and most recently measured an annual mean PM<sub>2.5</sub> concentration of 10.0 µg/m<sup>3</sup>, well below the AQAL.

The measured annual mean PM<sub>2.5</sub> concentrations for monitoring sites within 10 km are presented in Table 7.

**Table 7: National Government PM<sub>2.5</sub> Monitoring (µg/m<sup>3</sup>)**

Site ID – Name (Type)	Measurement	Distance
PT4 - Port Talbot Margam (Industrial Urban)	10.0	9.7 km
AQAL	25	

## Feasibility of Site

The baseline air quality associated with the site location is based on the following:

### Location

- the development is located over 1.5 km from any AQMA. There is thus a low risk that the potential users of the development are unlikely to be exposed to poor existing air quality;
- should the development generate a significant volume of traffic there is a potential the traffic through the AQMA may impact concentrations within the AQMA. Given the size of the development there is low risk of this;
- Natural Resources Wales regulates sites which are at risk of contributing significantly to pollutant concentrations. There are no regulated sites within 500 m of the development; and
- there is a nationally designated ecological site within 1.5 km of the development which will be sensitive to small changes in pollutant emissions. This site is, however, located away from local roads. There are no sensitive locally or internationally designated ecological sites.



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## Predicted Baseline Air Quality

- predicted NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> background concentrations are below the AQAL in all years; and
- NO<sub>2</sub> concentrations at nearby major roads are predicted to be approximately 14.2 µg/m<sup>3</sup> at locations near to the development.

## Measured Air Quality

- nearby local authority monitoring measurements are well below the NO<sub>2</sub> AQAL; and
- the nearest AURN monitoring measurements are well below the NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> AQAL.

Overall, considering the scale, location and potential impact of the development there is a Low-Medium risk of adverse air quality impacts.

## Mitigation

Mitigation measures need to be tailored to each specific development depending on the sensitivity of the area, the development type and size.

### Mitigation by Design

The EPUK and IAQM guidance (2017) is clear that it is important that proposed development incorporate good design and best practice measures to ensure any impacts are minimalised as far as practicable, even where pollutant concentrations are likely to be below the air quality objectives/limit values.

Mitigation measures have financial implications on developments and specifying the correct level of mitigation is important. If you require any advice please contact APS at [contact@airpollutionservices.co.uk](mailto:contact@airpollutionservices.co.uk).

The development may benefit from the following good design and best practice measures incorporated into the design, although not all will be essential:

- provision of bicycle storage/parking; and
- provision of pedestrian and cycle access to and from the proposed development to promote sustainable modes of transport.

Since a Low-Medium risk of adverse impacts has been identified, it is recommended that the following mitigation measures are also considered for inclusion in the design of the development:

- passive electric vehicle charging points for all proposed parking spaces (i.e. design to include electrical cables ready for charging points to be installed; and
- situating sensitive properties within the development back from local roads to minimise the effects of local pollution on future occupants.

The Department for Transport published a proposed policy document regarding electric vehicle charging in July 2019 to help deliver the aims of the Government's Industrial Strategy. Consultation of this ended in October 2019 and the feedback is currently being analysed. This would require all new residential dwellings with an associated car parking space to have an active charge point, and all new non-residential buildings with more than ten parking spaces to have at least one active charge point and passive cabling for all parking spaces. Consultation on this has recently closed and a decision is expected soon. Consideration should therefore be given to the inclusion of active charging points within the development.

### Further Mitigation

Given the nature of the site, it is considered unlikely that further mitigation would be requested from the local authority.

### Notes

Air quality is a complex topic in which many aspects can have significant effects. As such, to determine the impacts of a specific development a full air quality assessment that considers the development plans in detail may be required by the local authority to support a planning application. This report purely considers the likely sensitivity of the area to a development based on simple assumptions to aid with determining the level of risk that air quality may have, whether the impacts may be a limiting factor for development and to estimate the level of mitigation measures which should be considered for inclusion in the design of the scheme. For a full air quality assessment please email [contact@airpollutionservices.co.uk](mailto:contact@airpollutionservices.co.uk).

Impacts could occur at locations where there are bottlenecks in traffic flows on the local road network. Although this often occurs in urban locations, it is not uncommon for this to occur for developments located near or in smaller market towns where traffic route options are limited. A detailed analysis of the road traffic impacts would be required where this may potentially occur.

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