



Ponderosa, Church Street, Briton Ferry

Air Quality Assessment for Planning Application

10th February 2023

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1. INTRODUCTION

1.1. Overview

inacoustic has been commissioned to undertake an air quality assessment in connection with the proposed application for a traveller pitch at No.1 Ponderosa, Church Street, Briton Ferry, Port Talbot, SA11 2NZ.

This report assess the suitability of the Site for residential development in terms of the potential exposure of future occupants to poor air quality. A glossary of common air quality terminology is provided in Appendix A.

1.2. Scope and Objectives

The scope of the air quality assessment can be summarised as follows:

- An assessment of existing air quality in the vicinity of the development site has been undertaken to establish baseline conditions;
- Recommendation of mitigation measures, where necessary.

2. LEGISLATION AND POLICY FRAMEWORK

The development proposals for the Site are guided by the following policy directives and guidance:

2.1. International Air Quality Policy

2.1.1. EU Directive 2008

The EU Directive 2008/50/EC¹ on ambient air quality and cleaner air for Europe (the CAFE directive) sets out the ambient air quality standards for a number of pollutants and the dates by which these objectives should be met. The Air Quality Standards (Wales) Regulations 2010² implements the requirements of the Directive into UK legislation. The Directive contains a series of limit values for the protection of human health and critical levels for the protection of vegetation. These limit values are legally binding and the UK may incur infringement action if it does not meet the required objective limits within the agreed time limits. The UK is currently exceeding the objective limits for NO₂ and PM₁₀ within London and a number of other air quality zones within the UK.

2.2. National Air Quality Policy

2.2.1. The UK Air Quality Strategy

The Government's policy on air quality within the UK is set out in the Air Quality Strategy (AQS) for England, Scotland, Wales and Northern Ireland (AQS) published in July 2007³, pursuant to the requirements of Part IV of the Environment Act 1995. The AQS sets out a framework for reducing hazards to health from air pollution and ensuring that international commitments are met in the UK. The AQS is designed to be an evolving process that is monitored and regularly reviewed.

The AQS sets standards and objectives for ten main air pollutants to protect health, vegetation and ecosystems. These are benzene (C₆H₆), 1,3-butadiene (C₄H₆), carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO₂), oxides of nitrogen (NO_x), particulate matter (PM₁₀, PM_{2.5}), sulphur dioxide (SO₂), ozone (O₃) and polycyclic aromatic hydrocarbons (PAHs).

The air quality standards are long-term benchmarks for ambient pollutant concentrations which represent negligible or zero risk to health, based on medical and scientific evidence reviewed by the Expert Panel on Air Quality Standards (EPAQS) and the World Health Organisation (WHO). These are general concentration limits, above which sensitive members of the public (e.g. children, the elderly and the unwell) might experience adverse health effects.

The air quality objectives are medium-term policy-based targets set by the Government which take into account economic efficiency, practicability, technical feasibility and timescale. Some objectives are equal to the EPAQS recommended standards or WHO guideline limits, whereas others involve a margin of tolerance, i.e., a limited number of permitted exceedences of the standard over a given period.

For some pollutants there is both a long-term (annual mean) standard and a short-term standard. In the case of NO₂, the short-term standard is for a 1-hour averaging period, whereas for PM₁₀ it is for a

¹ Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe

² Air Quality Regulations 2010-Statutory Instrument 2010 No.1433 (W.126)

³ The Air Quality Strategy for England, Scotland, Wales and Northern Ireland – July 2007

24-hour averaging period. These periods reflect the varying impacts on health of differing exposures to pollutants (e.g., temporary exposure on the pavement adjacent to a busy road, compared with the exposure of residential properties adjacent to a road).

Of the pollutants included in the AQS, NO₂ and PM₁₀ would be particularly relevant to this project as these are the primary pollutants associated with road traffic. The current statutory standards and objectives for NO₂ and PM₁₀ in relation to human health are set out in **Error! Reference source not found.**

The Welsh Government Local Air Quality Management Policy Guidance (LAQM.PG(W)(17))⁴ sets out new guidance on the role and responsibilities of local authorities and PM_{2.5}. Although there is no regulatory standard applied to the PM_{2.5} role for local authorities in England, local authorities are expected to work towards reducing emissions and concentrations of PM_{2.5} in their area. The policy guidance recommends that local authorities in England use the EU Ambient Air Quality Directive⁵ standards for PM_{2.5} including an exposure reduction obligation, a target value and a limit value as a guide. The objective limit for PM_{2.5} is also set out in Table 1.

TABLE 1: RELEVANT OBJECTIVES SET OUT IN THE AIR QUALITY STRATEGY

Pollutant	Concentrations	Measured As	Date to be Achieved by
Nitrogen Dioxide (NO ₂)	200 µg/m ³ not to be exceeded more than 18 times per year	1-hour mean	31 December 2005
	40 µg/m ³	Annual Mean	31 December 2005
Particulate Matter (PM ₁₀)	50 µg/m ³	24-hour mean	31 December 2004
	40 µg/m ³	Annual mean	31 December 2004
Particulate Matter (PM _{2.5})	20 µg/m ³	Annual mean	31 December 2010

The statutory standards and objectives apply to external air where there is relevant exposure to the public over the associated averaging periods within each objective. Guidance is provided within Local Air Quality Management Technical Guidance 2022 (LAQM.TG(22))⁶ issued by DEFRA for Local Authorities on where the objectives apply, as detailed in Table 2. The objectives do not apply in workplace locations, to internal air or where people are unlikely to be regularly exposed (i.e., centre of roadways).

TABLE 2: LOCATIONS WHERE AIR QUALITY OBJECTIVES APPLY

Averaging Period	Objectives should apply at:	Objectives should generally not apply at:
Annual Mean	All locations where members of the public might be regularly exposed. Building facades of residential properties, schools, hospitals, care home etc.	Building facades of offices or other places of work where members of the public do not have regular access. Hotels, unless people live there as their permanent residence.

⁴ Welsh Government (2017) Local Air Quality Management in Wales Policy Guidance LAQM.PG(W)(17)

⁵ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:152:0001:0044:EN:PDF>

⁶ DEFRA (2022) Local Air Quality Management. Technical Guidance LAQM.TG(22)

Averaging Period	Objectives should apply at:	Objectives should generally not apply at:
		Gardens of residential properties. Kerbside sites (as opposed to locations at the building facade), or any other location where public exposure is expected to be short term.
24 Hour Mean	All locations where the annual mean objective would apply together with hotels. Gardens of residential properties.	Kerbside sites (as opposed to locations at the building facade), or any other location where public exposure is expected to be short term.
1 Hour Mean	All locations where the annual mean and 24-hour mean objectives apply. Kerbside Sites (e.g., pavements of busy shopping streets). Those parts of car parks, bus stations and railway stations etc. which are not fully enclosed, where the public might reasonably be expected to spend 1-hour or more. Any outdoor locations where the public might reasonably be expected to spend 1-hour or longer.	Kerbside sites where the public would not be expected to have regular access.

2.2.2. National Air Quality Plan for Nitrogen Dioxide (NO₂) in the UK

The National Air Quality Plan⁷, published by Defra and the Department for Transport (DfT), aims to tackle roadside concentrations of NO₂ in the UK. It sets out a number of measures to help local authorities to improve air quality such as investing in Ultra Low Emission Vehicles (ULEVs) charging infrastructure, public transport and grants.

The plan requires all local authorities (LAs) with areas expected not to meet the Limit Values by 2020 (known as ‘air quality hotspots’) to develop plans to bring concentrations within these values in “the shortest time possible”. These plans are to be reviewed by the government and suggestions included in the plan include actions such as utilising retrofitting technologies, changing road layout and encouraging public transport and ULEV use. Where these approaches are not considered sufficient, the LA may need to consider implementation of a Clean Air Zone (CAZ) which places restrictions on vehicle access to an area and may include charging certain (or all) vehicles or restrictions on the type of vehicle allowed to access an area.

2.2.3. Road to Zero Strategy

The ‘Road to Zero’ strategy⁸ set out the governments aims regarding zero emissions vehicles. These include the aim that all new cars and vans have zero tailpipe emissions by 2040, that the sale of new conventional petrol and diesel cars and vans will end by 2040 and for almost every car to be zero

⁷ Defra and DfT. (2017). UK plan for tackling roadside nitrogen dioxide concentrations. London: HMSO

⁸ HM Government. (2018). Road to Zero Strategy. London: HMSO

emission by 2050. Measures are aimed at encouraging uptake of the cleanest vehicles and support electric charging infrastructure.

2.2.4. Road to Zero Strategy

The Clean Air Strategy⁹ sets out policies to lower national emissions of pollutants in order to reduce background pollution and human exposure. It aims to create a strong framework to tackle air pollution and to reduce the number of people living in locations with PM2.5 concentrations exceeding 10 µg/m³ by 50% by 2025

2.3. Planning Policy

2.3.1. National Planning Policy

Planning Policy Wales (PPW)¹⁰, the latest edition published in February 2021, sets out the land use planning policies of the Welsh Government. This is supplemented by a series of Technical Advice Notes.

At the heart of the PPW is a presumption in favour of sustainable development to ensure that social, economic and environmental issues are balanced and integrated by the decision-maker when determining planning applications (paragraph 4.2.2). It requires Local Plans to be consistent with the principles and policies set out in the PPW with the objective of contributing to the achievement of sustainable development.

Paragraph 4.26 states that *'those proposing development also have a responsibility to provide sufficient information to enable the decision maker to make an informed judgement on whether the proposed development is sustainable'*.

Paragraph 4.3 sets out the 'Sustainable Development Principle', established in the Wellbeing of Future Generations (Wales) Act. This ensures the needs of the present are met without compromising the ability of future generations to meet their needs.

In dealing specifically with air quality, chapter 13, paragraph 13.10.1 states *'the planning system should determine whether a development is an acceptable use of land and should control other development in proximity to potential sources of pollution rather than seeking to control the processes or substances used in any particular development.'*

Paragraph 13.10.3 continues *'where pollution considerations, which may be relevant to a pollution control authorisation or licence or result from the need to comply with any statutory environmental quality standards or objectives, affect the use and development of land they can be material planning considerations. This provision extends to air quality objectives set out under Part IV of the Environment Act 1995 and the local authority's action plans for Air Quality Management Areas.'*

Section 13.12 refers to the potential for pollution affecting the use of land as being a material consideration in deciding whether to grant planning permission. Possible material considerations in determining applications for potentially polluting developments include:

- *Location, taking into account such considerations as the reasons for selecting the chosen site itself;*
- *Impact on health and amenity;*

⁹ Defra. (2019). Clean Air Strategy. London: HMSO

¹⁰ Welsh Government (2021) Planning Policy Wales Edition 11, February 2021

- *The risk and impact of potential pollution from the development, insofar as this might have an effect on the use of other land and the surrounding environment (the environmental regulatory regime may well have an interest in these issues, particularly if the development would impact on an Air Quality Management Area or a SAC);*
- *Prevention of nuisance;*
- *Impact on the road and other transport networks, and in particular on traffic generation; and*
- *The need, where relevant, and feasibility of restoring the land to standards sufficient for an appropriate after use.*

2.4. Local Planning Policy

2.4.1. Neath Port Talbot Local Development Plan 2011 - 2026

The Neath Port Talbot Local Development Plan¹¹, sets out policies to guide development up until 2026. In terms of air quality, the plan sets out the following under Policy SP16 'Environmental Protection':

Air, water and ground quality and the environment generally will be protected and where feasible improved through the following measures:

- 1. Ensuring that proposals have no significant adverse effects on water, ground or air quality and do not significantly increase pollution levels;*
- 2. Giving preference to the development of brownfield sites over greenfield sites where appropriate and deliverable;*
- 3. Ensuring that developments do not increase the number of people exposed to significant levels of pollution.*

In addition, Policy EN 8 'Pollution and Land Stability' states:

Proposals which would be likely to have an unacceptable adverse effect on health, biodiversity and/or local amenity, or would expose people to unacceptable risk due to the following will not be permitted:

- *Air pollution;*
- *Noise pollution;*
- *Light pollution;*
- *Contamination;*
- *Land instability;*
- *Water (including groundwater) pollution.*

Proposals which would create new problems or exacerbate existing problems detailed above will not be acceptable unless mitigation measures are included to reduce the risk of harm to public health, biodiversity and/or local amenity to an acceptable level.

2.5. Air Quality Guidance

2.5.1. DEFRA Technical Guidance, LAQM.TG(22)

Local authorities are seen to play a particularly important role. Section 82 of the Environment Act 1995 requires every local authority to conduct a review of the air quality from time to time within the authority's area. LAQM.TG(22) describes a new streamlined approach to the Local Air Quality Management (LAQM) regime, whereby every authority has to undertake and submit a single Annual Status Report/Annual Progress Report within its area, to identify whether the objectives have been or will be achieved at relevant locations by the applicable date. If the objectives are not being met,

¹¹ Neath Port Talbot Local Development Plan 2011 - 2026, adopted January 2016

the authority must declare an Air Quality Management Area (section 83 of the Act) and prepare an action plan (section 84) which identifies measures that will be introduced in pursuit of the objectives.

3. SITE DESCRIPTION

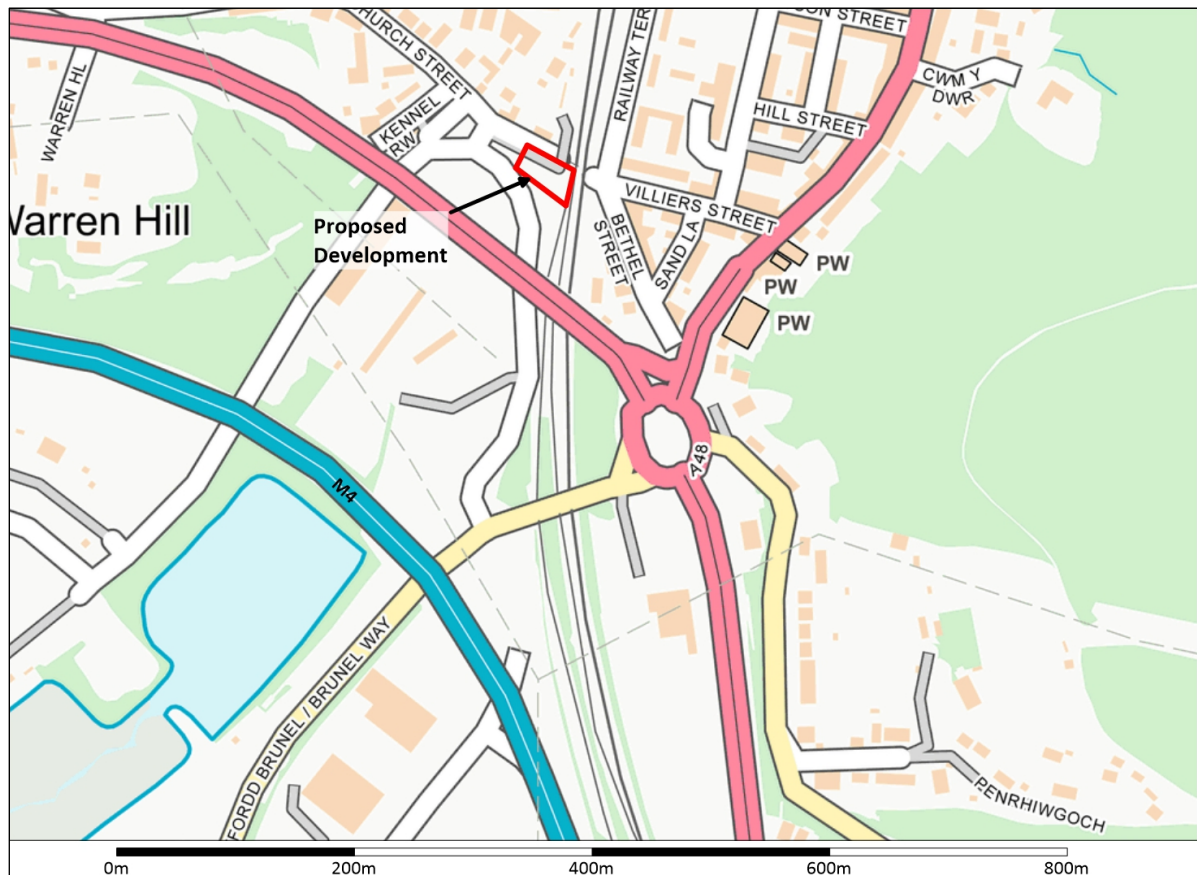
3.1. Site and Surrounding Area

The site lies in an elevated location to the south side of Church Street, Briton Ferry, within a parcel of land formed by the Docks Estate Road in the south, railway line to the east and Church Road to the north. The area is primarily residential in nature, transitioning to commercial at approximately 100m to the south of the site.

To the south of the site is the A48 Briton Ferry Bridge, which sits at a substantially elevated location above the site and benefits from solid parapet walls on either side. To the south of the A48 corridor is the Docks Estate, which includes a variety of commercial activities, primarily related to materials recycling.

The application area is shown on Figure 1.

FIGURE 1: SITE LOCATION



3.2. Development Overview

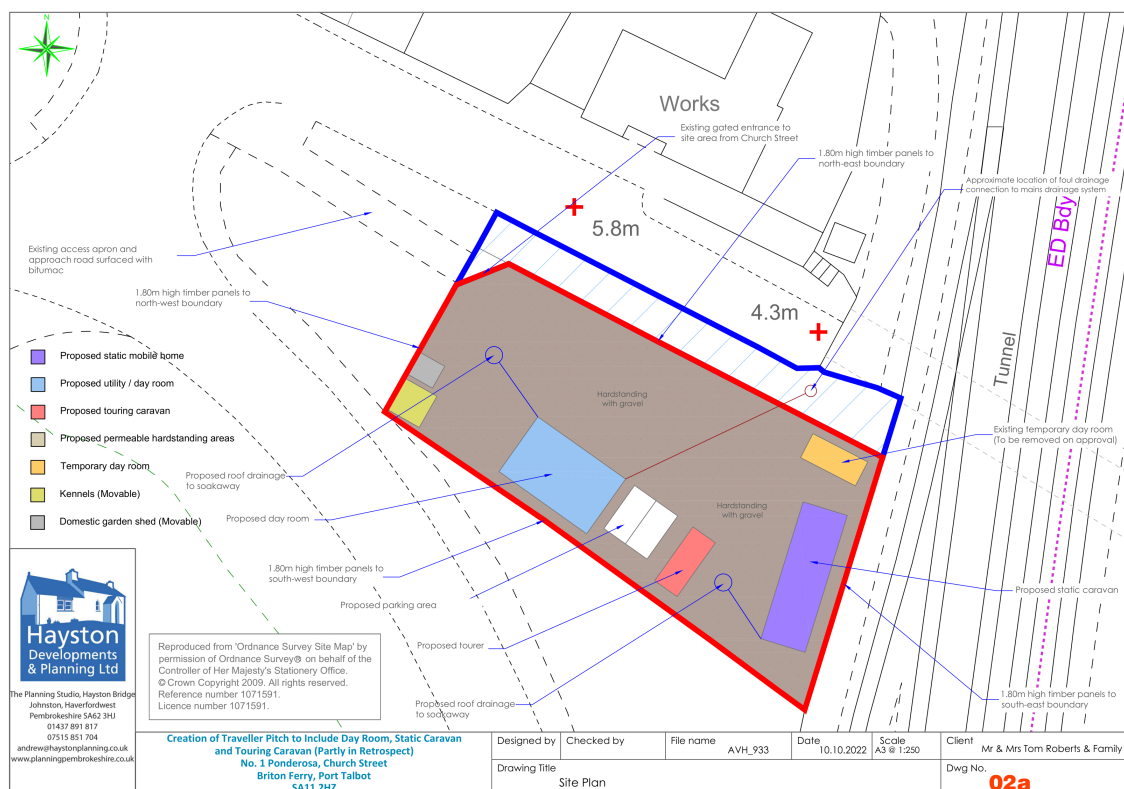
The application proposes to locate a single traveller pitch on the site, including a static mobile home, a utility room, dayroom, hardstanding and landscaping.

The static home, utility room, hardstanding and perimeter fencing have already been constructed and are occupied by the Applicant's family. This comprises the retrospective element, with the dayroom, which is yet to be constructed, comprising the non-retrospective element.

The static home is designed and oriented such that all habitable room windows are located on the west and north facades, so do not directly overlook the railway line or major road corridors. The close board timber fence along the eastern boundary extends to the height of the eaves of the static home, such that the tops of all windows are below the height of the top of the fence. All other fencing extends to a height of circa 1.8m.

The Development layout can be seen in Figure 2.

FIGURE 2: DEVELOPMENT LAYOUT



4. METHODOLOGY

4.1. Baseline Assessment

A baseline assessment of air quality in the vicinity of the Site and the surrounding area has been carried out through a review of monitoring data available within the Neath Port Talbot air quality review and assessment reports, most notably the 2020 Air Quality Annual Progress Report (APR)¹². More recent monitoring data has not been considered due to the influence of the Covid-19 pandemic on traffic levels. Additional data has been obtained from the UK Air Information Resource (UK-AIR) background pollution maps.

The results of the baseline assessment have been used to assess the suitability of the Site for residential development and impacts in terms of new exposure.

¹² NPT (2020) Neath Port Talbot Council 2020 Air Quality Progress Report

5. BASELINE ASSESSMENT

5.1. Neath Port Talbot (NPT) Review and Assessment of Air Quality

NPT has carried out detailed assessments of air quality and have declared one AQMA within their administrative area due to particulate (PM₁₀) emissions associated with the Corus Steelworks. The designated area is approximately 5km southeast of the Proposed Development.

5.1.1. Monitoring of Nitrogen Dioxide

NPT Council monitor ambient NO₂ concentrations automatically at two locations in their administrative area; a roadside location in Neath and an urban background location in Port Talbot. Both sites are in excess of 3km from the Proposed Development and the monitoring data are unlikely to be representative of concentrations at the Proposed Development.

The nearest monitoring locations to the proposed development are passive diffusion tubes located adjacent to the A474 in Briton Ferry, approximately 600m northwest of the Site. The location of the tubes in relation to the Site are shown in Figure 3. Diffusion tubes are a passive form of monitoring, which, due to their relative inexpense, allow for a much greater spatial coverage than with automatic monitoring sites. Diffusion tubes are acknowledged as a less accurate method of monitoring ambient air pollutants than automatic monitors, with diffusion tubes over or under estimating concentrations by as much as 30%. To allow the results to be reliably compared with the AQ Objectives, the data should be bias corrected using data collected from tubes co-located with continuous monitoring sites.

Annual mean NO₂ concentrations measured at these sites between 2015 and 2019 are presented in Table 3. The data has been adjusted by NPT Council using appropriately derived bias adjustment factors. Data for 2020 and 2021 has not been included due to the influence of the Covid-19 pandemic on traffic levels. The monitoring data indicate that concentrations at locations close to the A474 in Briton Ferry are well within the annual mean NO₂ objective of 40 µg/m³.

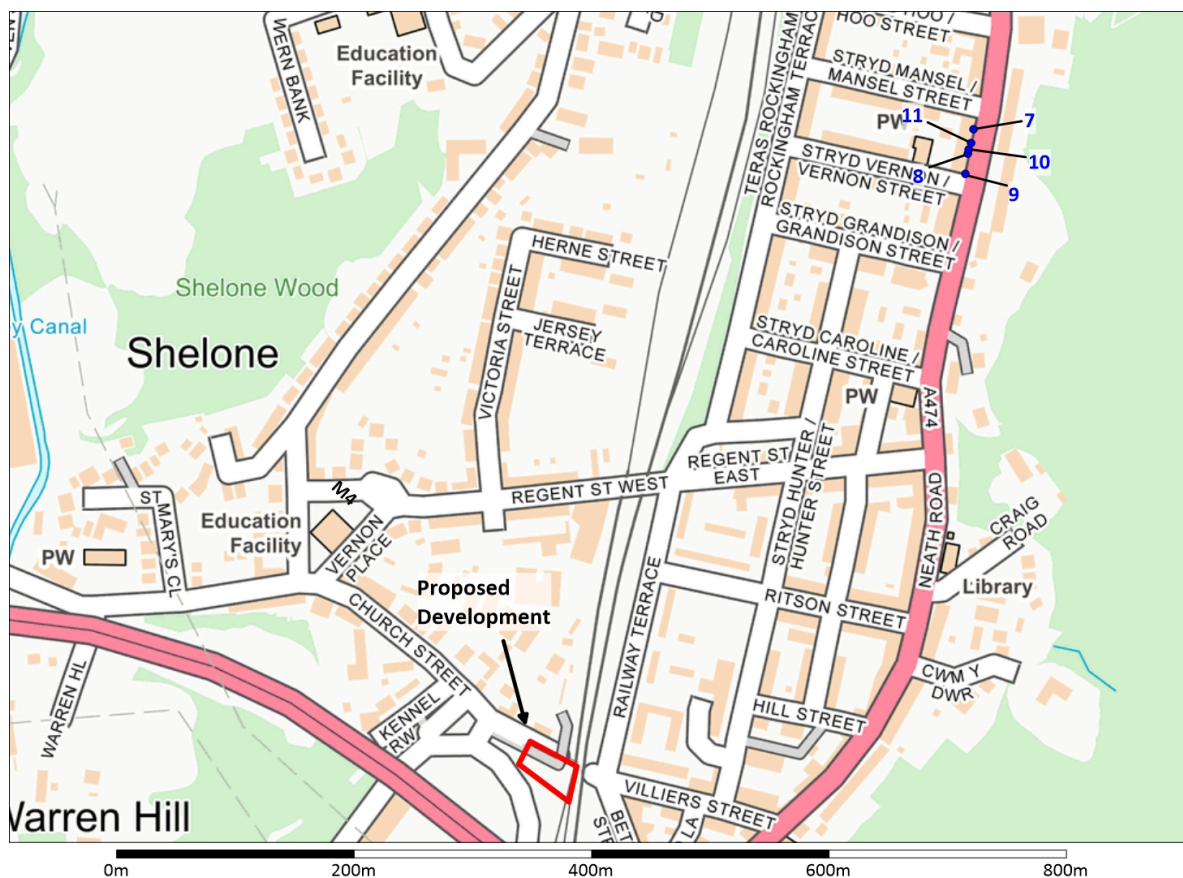
It is not possible to monitor short-term NO₂ concentrations using diffusion tubes, however, analysis of long-term monitoring data¹³ suggests that if the annual mean NO₂ concentration is less than 60 µg/m³ then the one-hour mean NO₂ objective is unlikely to be exceeded where road transport is the main source of pollution. Based on the monitoring data presented in, it is unlikely that the short-term objective is being exceeded in Briton Ferry.

TABLE 3: DIFFUSION TUBE ANNUAL AVERAGE NITROGEN DIOXIDE CONCENTRATIONS µG/M³

Site	Type	Distance to Kerb of Nearest Road	Year				
			2015	2016	2017	2018	2019
7 – Moby's	R	2 m	27.9	27.6	30.2	24.5	26.3
8 – 185 Neath Road	R	2 m	28.1	27.5	29.0	24.9	23.9
9 – 179 Neath Road	R	2 m	28.6	26.3	28.3	23.5	25.1
10 – 187 Neath Road	R	2 m	28.0	26.1	28.9	24.6	26.1
11 – 189 Neath Road	R	2 m	28.1	27.3	29.2	23.8	26.1
R- Roadside							

¹³ D Laxen and B Marner: Analysis of the relationship between 1-hour and annual mean nitrogen dioxide at UK roadside and kerbside monitoring sites (July 2003).

FIGURE 3: LOCATION OF NEAREST NO₂ MONITORING SITES



5.1.2. Monitoring of Particulate Matter

Automatic monitoring of PM₁₀ and PM_{2.5} is undertaken at a number of locations within the Neath Port Talbot administrative area; however, all of the monitors are at locations where the primary emission source is industrial. Data from these sites are therefore unlikely to be representative of existing concentrations at the Proposed Development

5.2. DEFRA Background Maps

Additional information on estimated background pollutant concentrations has been obtained from the DEFRA background maps provided on UK-AIR, the Air Quality Information Resource (<http://uk-air.defra.gov.uk>). Estimated air pollution concentrations for oxides of nitrogen (NO_x), NO₂, PM₁₀ and PM_{2.5} have been extracted from the 2018 referenced background pollution maps for the UK, which were published in August 2020. The maps are available in 1 km x 1 km grid squares and provide an estimate of concentrations between 2018 and 2030. Concentrations at the proposed development have been derived from contour plots of the 2023 mapped data and are set out in Table 4Table 4.

TABLE 4: ANNUAL MEAN BACKGROUND AIR POLLUTION CONCENTRATIONS AT THE PROPOSED DEVELOPMENT

Pollutant	2023 Annual Mean ($\mu\text{g}/\text{m}^3$)
NO ₂	10.4
PM ₁₀	11.8
PM _{2.5}	7.4

5.3. Air Quality at the Development Site

The Site is approximately 170m from the A474, where recent monitoring data (see Table 3) indicates that NO₂ concentrations are well below the long and short-term air quality objectives. The A48 flyover is approximately 50m southeast of the Site, however pollutant concentrations decline rapidly from the roadside and based on the low background concentrations in the area (see Table 4), an exceedance of the air quality objectives at the Site is unlikely. The road source is also elevated, which aids the dispersion of vehicle emissions, reducing the impact at ground-level.

The Site is adjacent to the Southeast Main Line railway line, which has been identified in LAQM.TG22 as having a large number of diesel passenger trains. The guidance provides screening criteria to determine whether a significant impact is likely to occur at locations within 30m of the tracks such that where existing annual mean background concentrations are below 25 $\mu\text{g}/\text{m}^3$, further consideration is not required, and impacts are expected to be negligible. Based on the mapped and measured concentrations in the area, emissions from the railway are therefore unlikely to significantly affect air quality at the Site.

It is concluded, therefore, that pollution concentrations at the Site are not exceeding the relevant objective limits and the Site is therefore suitable for residential development, as proposed.

6. CONCLUSION

inacoustic has been commissioned to undertake an air quality assessment in connection with the proposed application for the provision of a traveller pitch at No.1 Ponderosa, Church Street, Briton Ferry, Port Talbot, SA11 2NZ.

The proposed development will not significantly affect local air quality; however, a review of existing air quality has been undertaken to determine whether the site is suitable for residential development with respect to the potential exposure of future occupants to elevated pollutant concentrations.

Based on the local air quality monitoring data and Defra mapped background data, taking into account the proximity of the Site to road and rail emission sources, it is considered that future occupants will not be exposed to pollutant concentrations above the air quality objectives for the protection of health.

On this basis, the site is considered suitable for residential development, as proposed.

7. APPENDICES

7.1. Appendix A – Definition of Terms

Accuracy	A measure of how well a set of data fits the true value.
Air Quality Objective	Policy target generally expressed as a maximum ambient concentration to be achieved, either without exception or with a permitted number of exceedences within a specific timescale (see also air quality standard).
Air Quality Standard	The concentrations of pollutants in the atmosphere which can broadly be taken to achieve a certain level of environmental quality. The standards are based on the assessment of the effects of each pollutant on human health including the effects on sensitive sub groups (see also air quality objective).
Ambient Air	Outdoor air in the troposphere, excluding workplace air.
Annual Mean	The average (mean) of the concentrations measured for each pollutant for one year. Usually this is for a calendar year, but some species are reported for the period April to March, known as a pollution year. This period avoids splitting winter season between 2 years, which is useful for pollutants that have higher concentrations during the winter months.
AQMA	Air Quality Management Area.
DEFRA	Department for Environment, Food and Rural Affairs
Exceedance	A period of time where the concentrations of a pollutant is greater than, or equal to, the appropriate air quality standard.
Fugitive emissions	Emissions arising from the passage of vehicles that do not arise from the exhaust system.
LAQM	Local Air Quality Management.
NO	Nitrogen monoxide, a.k.a. nitric oxide.
NO ₂	Nitrogen dioxide.
NO _x	Nitrogen oxides.
O ₃	Ozone
Percentile	The percentage of results below a given value.
PM ₁₀	Particulate matter with an aerodynamic diameter of less than 10 micrometres.
Ratification (Monitoring)	Involves a critical review of all information relating to a data set, in order to amend or reject the data. When the data have been ratified they represent the final data to be used (see also validation).
µg/m ³ micrograms per cubic metre	A measure of concentration in terms of mass per unit volume. A concentration of 1µg/m ³ means that one cubic metre of air contains one microgram (millionth of a gram) of pollutant.
UKAS	United Kingdom Accreditation Service.
Uncertainty	A measure, associated with the result of a measurement, which characterizes the range of values within which the true value is expected to lie. Uncertainty is usually expressed as the range within which the true value is expected to lie with a 95% probability, where standard statistical and other procedures have been used to evaluate this figure. Uncertainty is more clearly defined than the closely related parameter 'accuracy', and has replaced it on recent European legislation.
USA	Updating and Screening Assessment.
Validation (Modelling)	Refers to the general comparison of modelled results against monitoring data carried out by model developers.
Validation (Monitoring)	Screening monitoring data by visual examination to check for spurious and unusual measurements (see also ratification).
Verification (Modelling)	Comparison of modelled results versus any local monitoring data at relevant locations.

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