THE VALE OF
GLAMORGAN COUNCIL

TOWN AND COUNTRY PLANNING ACT 1990

APPROVED

SUBJECT TO COMPLIANCE WITH CONDITIONS (IF ANY)

Land to the North of the Railway Line (West) Rhoose

Air Quality Assessment

May 2014

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This document has been prepared and checked in accordance with
Waterman Group's IMS (BS EN ISO 9001: 2008 and BS EN ISO 14001: 2004)

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Comments

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1. Introduction

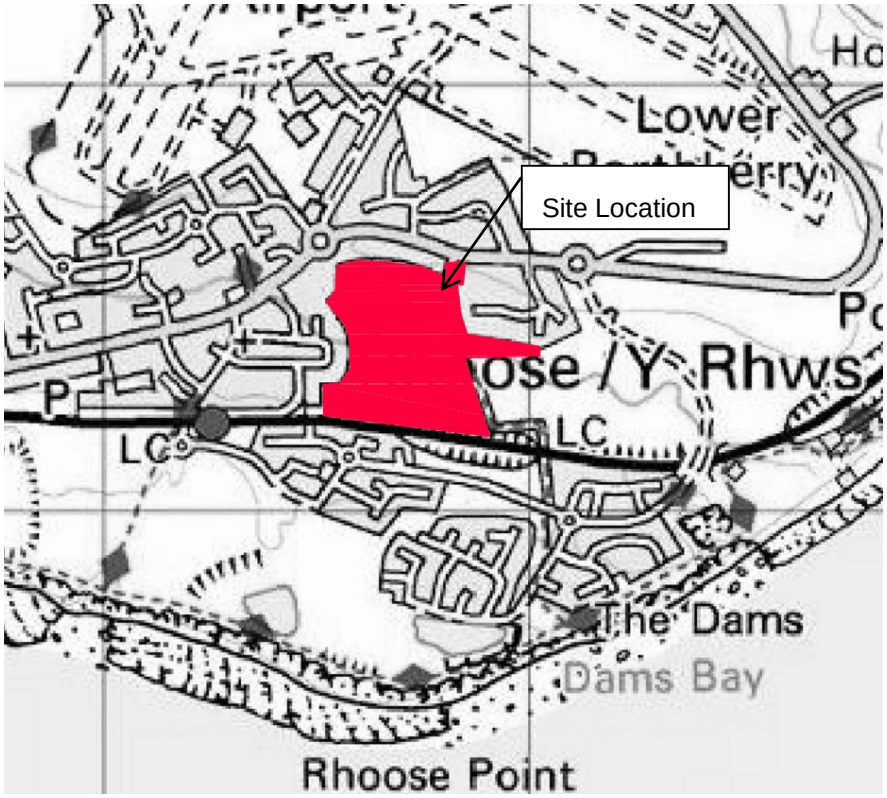
1.1 General Description

Waterman Transport & Development have been commissioned to undertake an air quality assessment of a proposed development within the village of Rhoose in the Vale of Glamorgan. The applicant is seeking outline permission to develop:

- 350 Houses
- A 258 Pupil Primary School (210 primary pupils and 48 part time nursery spaces)

The development site is an area of greenfield land located to the south of Porthkerry Road, within the town of Rhoose. The site is bounded, to the south by a Railway Line and to the north, west and northeast by existing residential conurbations and streets. There is also currently an area of greenfield land to the eastern boundary of the site, which has planning consent for the development of 350 dwellings as part of an overall UDP / LDP allocation for the area which includes the development site.

Figure 1: Site Location Plan



Potential emissions from the construction activities, in terms of on-site plant/vehicle emissions and dust, have the potential to affect local air quality and cause nuisance, especially if dust is deposited onto surfaces such as cars and windows. In addition, vehicles driving into and exiting the Site, to access all uses proposed

for the Development, have the potential to affect air quality along surrounding roads where sensitive uses exist.

Following review of the potential traffic impacts of the operational Development, the existing air quality and landuse in the area, and consultation with Vale of Glamorgan County Council (VoG) it was determined that a quantitative Air Quality Assessment would not be required to accompany the planning application, however a summary report would be required which justifies why a quantitative assessment is not needed.

Section 2 of this report gives a summary of legislation and planning policy relevant to air quality. Section 3 provides details of the methodology this summary report is based on and Section 4 sets out the baseline conditions at and around the Site. The reasoning's as to why a quantitative assessment of air quality is not need is presented in Section 5, together with a qualitative assessment of construction activities. Mitigation measures applicable to construction sites are presented in Section 6. A summary of this report is given in Section 7.

2. Air Quality Legislation and Planning Policy

2.1 European Legislation

Air pollutants at high concentrations can give rise to adverse effects on the health of humans and ecosystems. European Union (EU) legislation on air quality forms the basis for national UK legislation and policy on air quality.

The European Union Framework Directive 2008/50/EC on ambient air quality assessment and management came into force in May 2008 and had to be implemented by Member States, including the UK, by June 2010. The Directive aims to protect human health and the environment by avoiding, reducing or preventing harmful concentrations of air pollutants

2.2 National Legislation

2.2.1 Air Quality Standards Regulations

The Air Quality Standards Regulations 2010 implement limit values prescribed by the Directive 2008/50/EC. The limit values are legally binding and the Secretary of State, on behalf of the UK Government, is responsible for their implementation.

2.2.2 The UK Air Quality Strategy

In a parallel process, the Environment Act 1995 required the preparation of a national air quality strategy setting health–based air quality objectives for specified pollutants and outlining measures to be taken by Local Planning Authorities (LPAs) in relation to meeting these (the Local Air Quality Management (LAQM) system).

The UK Air Quality Strategy (AQS), adopted in 1997, was subsequently reviewed and revised in 2000 as the Air Quality Strategy for England, Scotland, Wales and Northern Ireland. An amendment to the Strategy was published in 2003.

The current UK AQS was published in July 2007 and updates the original strategy to set out new objectives for local authorities in undertaking their local air quality management duties. The 2007 UK AQS introduces a national level policy framework for exposure reduction for fine particulates. Objectives in the current UK AQS are in some cases more onerous than the limit values set out within the relevant EU Directives and the Air Quality Standards Regulations 2010. In addition, objectives have been established for a wider range of pollutants.

The limit values and objectives of air pollutants relevant to this assessment are summarised in Table 1.

Table 1: Summary of Relevant Air Quality Limit Values and UK AQS Objectives

Pollutant	Standard		Objective Date
	Concentrations	Measured as	
Benzene	16.25µg/m^3	Running Annual mean	31/12/2003
	5µg/m^3	Annual mean	31/12/2010
1,3 Butadiene	2.2µg/m^3	Running annual mean	31/12/2003
Carbon monoxide (CO)	10 µg/m^3	Maximum daily running 8–hour mean	31/12/2003
Nitrogen dioxide (NO_2)	200µg/m^3	1 hour mean not to be exceeded more than 18 times per year	31/12/2005
	40µg/m^3	Annual mean	31/12/2005
Particulate Matter (PM_{10})	50µg/m^3	24–hour mean not to be exceeded more than 35 times per year	31/12/2004
	40µg/m^3	Annual mean	31/12/2004
Particulate Matter ($PM_{2.5}$)	Target of 15% reduction in concentrations at urban background locations	Annual mean	Between 2010 and 2020
	Variable target of up to 20% reduction in concentrations at urban background locations*	Annual mean	Between 2010 and 2020
	25 µg/m^3	Annual mean	01/01/2020

Note: * Aim to not exceed 18 µg/m^3 by 2020

There are currently no statutory UK standards in relation to deposited dust and its propensity to cause nuisance. A deposition rate of 200mg/m^2/day (averaged over a month) is sometimes used as a threshold value for potentially significant nuisance effects.

2.2.3 Local Authority Responsibility

Part IV of the Environment Act 1995 provides a system of Local Air Quality Management (LAQM) under which local authorities are required to review and assess the future quality of the air within their administrative boundaries by way of a staged process. In the event that this process suggests that any of the Air Quality Strategy Objectives will not be met by the target dates, the local authority must consider the declaration of an Air Quality Management Area (AQMA) and the subsequent preparation of an Air Quality Action Plan to improve the air quality in that area in pursuit of the Objectives. A summary of VoG review and assessment of air quality is provided in Section 4.

2.3 National Planning Policy

2.3.1 Welsh Assembly Government, Planning Policy Wales: Edition 6, February 2014

Planning Policy Wales (PPW) sets out the land use planning policies of the Welsh Assembly Government (the Assembly Government). In regards to air quality, PPW states:

"The potential for pollution affecting the use of land will be a material consideration in deciding whether to grant planning permission. Material considerations in determining applications for potentially polluting development are likely to include:

- *location, taking into account such considerations as the reasons for selecting the chosen site itself;*
- *impact on health and amenity;*
- *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 (and water resources) to standards sufficient for an appropriate after use. (Powers under the Pollution Prevention and Control Act 1999 require an operator to return a site to a satisfactory state on surrender of an Integrated Pollution Prevention and Control Permit)."*

2.3.2 Welsh Assembly Government, People, Places, Futures: The Wales Spatial Plan, 2008 Update

The Wales Spatial Plan (WSP) was originally adopted in 2004 and provides a framework for development and investment in the region over the next 20 years. An update report was produced in 2008. Whilst there are no specific policies relating to air quality, the WSP 2008 Update notes that *"Spatial Plan Area Groups can take a number of actions which will help us all tackle climate change, but also promote a healthy and enjoyable environment in which to live and work, including by:…improving air quality, for example through an integrated approach to traffic management".*

2.3.3 Environmental Protection UK: Planning for Air Quality, 2010

The Environmental Protection UK's (EPUK) Development Control: Planning for Air Quality (Update 2010) document advises that *"In arriving at a decision about a specific proposed development the local planning authority is required to achieve a balance between economic, social and environmental considerations."* Thus, it is clear that the document recommends that consideration also be given to the wider benefits from the opening of the Development.

The document also includes criteria and thresholds for air quality assessments. This element of the guidance is discussed further in Chapter 3.

2.4 Local Planning Policy

2.4.1 Vale of Glamorgan (VoG), Unitary Development Plan, 1996 - 2011

The unitary development plan sets out the planning policy for the VoG. VoG are in the process of developing the Local Development plan which will replace the UDP, however, until the LDP is complete the UDP remains a material consideration.

Policy ENV 29 of the UDP states:

"Development will not be permitted if it would be liable to have an unacceptable effect on either people's health and safety or the environment:

- *by releasing pollutants into water, soil or air, either on or off site; or*
- *from smoke, fumes, gases, dust, smell, noise, vibration, light or other polluting emissions."*

The UDP therefore emphasises that the protection of air quality is an important factor in the preservation of the overall environment of the county.

2.4.2 Vale of Glamorgan Local Development Plan

The VoG local development plan (LDP) is in process of being developed, however, a deposit plan was published in November 2013. Policy MD8 of the plan states that:

"Development proposals will be required to demonstrate they will not result in unacceptable impact on people, residential amenity, property and / or the natural environment from either:

(1) pollution of land, surface water, ground water and the air (Waterman's emphasis);

(2) contaminated Land;

(3) hazardous substances;

(4) noise, vibration, odour nuisance and light pollution;

(5) flood Risk and Consequences

(6) coastal Erosion or Land Stability or

(7) any other identified risk to public health and safety.

Where impacts are identified the council will require applicants to demonstrate that appropriate measures can be taken to minimise the impact identified to and acceptable level. Planning conditions may be imposed or legal obligation entered into, to secure any necessary mitigation and monitoring processes."

It is clear from policy MD8 that submissions for development will need to demonstrate that the schemes will not create unacceptable harm in terms of air pollution. The analysis in this report demonstrates that, with the mitigation measures proposed, the development is unlikely to create a significant air quality impact either during its construction phase or when the development has been occupied, and therefore, on this basis, would not create unacceptable harm in terms of air quality.

3. Assessment Methodology and Significance

3.1 Assessment Methodology

This qualitative air quality report has been undertaken using information from a variety of sources and has included:

- A review of VoG air quality data to establish baseline conditions in the area;
- A review of the local area to identify potentially sensitive receptor locations that could be affected by changes in air quality that result from the proposed Development;
- A review of the traffic flow data, as derived from the Transport Assessment (TA) also undertaken by Waterman Transport & Development; and
- Consideration of potential activities that would take place during construction, the potential effects of these activities on local air quality and the environmental management controls to be employed to control them.
- A qualitative assessment of the Schools Heat and Power Plant

3.1.1 Construction

The major influences on air quality throughout the construction works are likely to be dust-generating activities and vehicles emissions, from plant and vehicles both on and around the Site. The emphasis of the construction phase would be to minimise the potential effects at source, through appropriate site management and control practices, including controls on vehicles movements.

Potentially, nuisance can be caused by the deposition of construction dust. Construction derived dust effects cannot be easily quantified and therefore a more qualitative approach has been employed to predict potential effects from these works. The emphasis of this approach lies in the minimisation of potential dust effects at source through appropriate environmental management controls relating to, at least, 'good practice' site management practices. In particular, this included:

- Identification of good working practices and suitable mitigation measures in order to minimise the potential for dust emissions, and nuisance risk; and
- The likely generation of construction vehicle movements.

The proximity of sensitive receptors and their orientation in relation to the prevailing wind, in addition to the scale and duration of construction activities, would have a bearing on potential nuisance effects.

The assessment of the likely effects from construction of the proposed Development has been based on:

- A review of likely activities to be undertaken on the Site; and
- A review of the sensitive uses in the area immediately surrounding the Site in relation to their distance and orientation.

The significance of effect has been concluded through professional judgement based on the following:

- The baseline air quality conditions in the area surrounding the Site;
- The mitigation measures that would be proposed; and
- The knowledge of how such mitigation measures are routinely and successfully applied throughout the UK.

In addition to the above, the classification system provided in Table 2 was adopted, again based on professional judgement, for the assessment of potential adverse air quality effects arising from dust generated by the construction site.

Table 2: Dust Impacts Significance Criteria

Effect Significance	Definition
Major adverse	Receptor is less than 10m from a major active construction or demolition site.
Moderate adverse	Receptor is within 100m of a major active construction or demolition site.
Minor adverse	Receptor is between 100m and 200m from a major active construction or demolition site or up to 100m from a minor active construction site, demolition site or construction site.
Negligible	Receptor is over 100m from any minor construction site or over 200m from any major construction site.

3.1.2 Completed Development

Relatively sizeable changes in traffic are required to bring about significant changes in air quality. Guidance from the Environmental Protection UK (EPUK) 'Development Control: Planning for Air Quality suggests that the decision as to whether or not an air quality assessment is required should take into account:

- The physical characteristics and scale of the proposals;
- The changes in traffic flows predicted to arise;
- The proposals for Combined Heat and Power (CHP) plant or standalone boilers burning biomass; and
- The air quality sensitivity of the area (a highly sensitive area would be one where concentrations are above or close to the objectives, if the objectives are well below the objectives then the area would be of a lower sensitivity).

In addition to the above, the following criteria are provided to help establish when an air quality assessment is likely to be considered necessary:

- Proposals that will generate or increase traffic congestions, where 'congestion' manifests itself as an increase in periods with stop start driving;
- Proposals that will give rise to a significant change in either traffic volumes, typically a change in AADT or peak traffic flows of greater than ±5% or ±10%, depending on local circumstances, or in vehicle speed (typically of more than ±10kph), or both, usually on a road with more than 10,000 AADT (5,000 if narrow and congested);
- Proposals that would significantly alter the traffic composition on local roads, for instance, increase the number of HDVs by say 200 movements or more per day;
- Proposals that include significant new car parking, which may be taken to be more than 100 spaces outside an AQMA or 50 spaces inside an AQMA. Account should also be taken of car park turnover, i.e. the difference between short-term and long-term parking;
- Developments which may significantly affect nitrogen deposition to sensitive habitats;
- Introduction of new exposure close to existing sources of air pollutants, including road traffic, industrial operations, agricultural operations etc…;
- Proposals that include biomass boilers or biomass-fuelled CHP plant;

- Proposals that could give rise to potentially significant impacts during construction for nearby sensitive locations; and
- Large, long-term construction sites that would generate large HGV flows (>200 movements per day) over a period of a year or more.

In order to assess the effect of the proposed development on local air quality, 24 hour AADT traffic flows were derived from the TA, which was also produced by Waterman Transport & Development. The data included baseline traffic data for the opening year (2015) “without” the proposed Development and for the opening year “with” the proposed development.

4. Baseline Conditions

4.1 Vale of Glamorgan County Council, Air Quality Assessments

The latest Air Quality Updating and Screening Assessment for the county (2012) states in its conclusion that *"Overall air quality across the Vale of Glamorgan complies with the regulatory Air Quality Objectives applicable to Local Air Quality Management in Wales…"* The report does however state that detailed assessment of nitrogen dioxide levels within the Cogan area of Penarth, which was identified as being at risk of exceeding the annual mean air quality objective for nitrogen dioxide in the Vale of Glamorgan's 2010 Progress Report, and following recent monitoring results. A detailed assessment of Air Quality in Cogan was also submitted in May 2012 which recommends that an Air Quality Management Area (AQMA) be introduced at this location.

It is noted that Cogan is located approximately 12km northwest of the development site, and therefore it is clear that the development site is not located within or adjacent to an AQMA or potential AQMA.

4.2 Local Monitoring

4.2.1 Automatic Monitoring Sites

There are a number of automatic monitoring sites within the VoG. Details of the Annual Mean NO_2, and PM_{10} concentrations (the key pollutants from road traffic) recorded at these sites are summarised in Table 3 and 4 respectively.

Table 3: Results of Automatic Monitoring of Nitrogen Dioxide

Site	Annual Mean Concentration µg/m3				
	2008	2009	2010	2011	2012
Penarth (Vale)	25	27	31	21	26
Dinas Powys Infant School (Vale)	24	24	26	24	24
Penarth (Streetbox) (Vale)	-	28	37	42	35
Fonman (Vale)	11	11	12	13	13
Pumping Station Fontgary (RWE)	17	15	15	12	13

Site	Annual Mean Concentration µg/m3				
	2008	2009	2010	2011	2012
Sea View (RWE)	-	14.6	14	11	-

*Figures extracted from Table 2.4 of the Vale of Glamorgan 2013 Air Quality Progress Report

Table 4: Results of Automatic Monitoring of PM_{10}

Site	Annual Mean Concentration µg/m3				
	2008	2009	2010	2011	2012
Fonman	20.2	19.1	19	22	16
Penarth	-	24	22.8	28.7	20.4
Barry	-	-	22	25.8	21.8

*Figures extracted from Table 2.7 of the Vale of Glamorgan 2013 Air Quality Progress Report

The figures in Table 3 and 4 demonstrate that, with the exception of the NO_2 levels at the Penarth site which show a recorded level of 42µg/m^3 in 2011, there are no exceedances of the NO_2 and PM_{10} AQS objective threshold of 40µg/m^3. It is noted that the Penarth monitoring site is located approximately 12km from the site and approximately 5km from the closest links assessed by this Air Quality assessment. Thus, it is unlikely that the development will have a significant impact on the air quality of the area surrounding the Penarth monitoring site.

4.2.2 Non-Automatic Monitoring Sites

The council also has a number of Non-Automatic monitoring sites comprising entirely of Nitrogen Diffusion tubes (NO^2) tubes. Table 5 below provides a summary of the recorded levels of NO_2 at sites in the vicinity of the assessed air quality road network.

Table 5: Results of Nitrogen Dioxide Diffusion Tubes (2007 to 2011)

Site ID	Site Description	Annual mean concentration (adjusted for bias) µg/m3				
		2008	2009	2010	2011	2012
43	Groundhog Fonman*	13	14	14	13	15
24	Port Road East Barry*	22	23	26	26	27
N	Adenfield** Rhoose	-	-	13	15.1	
4	Gwenog Court Barry*	13	14	17	15	17

*Figures extracted from Table 2.6 of the Vale of Glamorgan 2013 Air Quality Progress Report
**Figures extracted from Table 2.6 of the Vale of Glamorgan 2012 Air Quality Updating and Screening Assessment

It can be seen from the figures in Table 5 that recorded annual mean concentrations of NO_2 are significantly lower than the AQS objective threshold outlined in Table 1 (40µg/m^3).

4.3 Pollutant Background Concentrations

Background concentrations (i.e. concentrations not including local pollutant sources such as roads or stacks) of NO_X, NO_2, PM_{10} and $PM_{2.5}$ are available from the Defra Air Quality Archive for 1x1km grid squares for assessment years between 2010 and 2030. Table 3 presents the Defra forecast background concentrations for the year 2014 for the grid square the Site is located within (306500, 165500).

Table 6: Defra Urban Background Maps in 2014 for the Grid Square at the Location of the Site

Pollutant	Concentration (µg/m^3)
NO_X	13.5
NO_2	10.1
PM_{10}	11.9
$PM_{2.5}$	8.1

Table 6 shows that in 2014 the pollutant background concentrations are significantly below the relevant UK AQS objectives shown in Table 1.

5. Potential Effects

5.1 Construction

The construction works, have the potential to effect local air quality conditions, as outlined below:

- Dust generated from construction activities;
- Emissions from construction plant e.g. piling rigs, compressors, excavators, concrete mixers and generators; and
- Emissions from vehicles (e.g. lorries, cars and vans) associated with the construction of the Development, import of building materials and removal of waste materials, accessing and leaving the Site on the local road network.
- Emissions from the School Plant

5.1.1 Nuisance Dust

The National Air Quality Objectives seek to address the health implications of fine particulate matter, which comes largely from combustion sources such as motor vehicle engines. In the case of particles released from ground excavation works, and construction, the majority of these would tend to be larger particles, which generally settle out close to the works and may cause annoyance due to their soiling capability. In this respect, there are no formal standards or criteria for adverse effects caused by deposited particulate matter.

Dust from construction activities within the urban environment generally does not arise at distances beyond approximately 200m from the works (in the absence of mitigation), and the majority of any deposition that might give rise to significant soiling tends to occur within 50 to 100m . Receptors that are downwind of a construction site are at more risk of dust effects than those that are upwind. The occupiers of residential properties tend to be more sensitive to dust than occupiers of commercial properties.

The closest residential properties are located adjacent to the northern and western boundary of the site. Therefore, based on the criteria in Table 2, the impact on these dwellings, without appropriate mitigation, is considered to be **major adverse**. In addition, there is also likely to be a **major adverse** impact on the adjacent proposed properties to the east of the site (assuming that these are built at the time of construction) and a **moderate adverse** impact on the residential properties located approximately 25m south of the site.

5.1.2 Vehicle Emissions

Plant operating on the Site and construction vehicles entering and leaving the Site would have the potential to contribute to local levels of air pollution, particularly NO_2 and PM_{10}.

It is anticipated that the effect of construction vehicles entering and leaving the Site would be **negligible** in the context of local background pollutant concentrations and existing local road traffic emissions.

Any emissions from plant operating on the Site would be small in comparison to the emissions from the road traffic movements on the roads adjacent to the Site and therefore would be **negligible**. In addition, the proposed mitigation measures (described in chapter 6) would further reduce any effect.

5.2 Qualitative Assessment of Completed Development

As detailed in Section 3: Assessment Methodology and Significance, EPUK provides guidance as to when a quantitative air quality assessment maybe required. With reference to this guidance, the sections below provide reasons why a quantitative air quality assessment is not required to accompany the planning application for the proposed Development.

5.2.1 Qualitative Assessment of Operational Generated Traffic

Vehicles driving into and exiting the Site, including those accessing all onsite facilities within the proposed Development, have the potential to affect air quality along surrounding roads where sensitive uses exist. A summary of the 24 hour Annual Average Daily Traffic 'without' and 'with' the proposed Development in the opening year of 2015 is presented in Table 7.

Table 7: 24hr AADT Traffic Data

Road Link	Opening Year without Development (AADT)	Opening Year with Development (AADT)	Impact
B4256 East of Fonman Road	8118	8118	0%
Fonman Road South of B4265	3753	4131	10%
B4256 West of Fonman Road	11087	11465	3%
Fonmon Road North of Fontgary Road	2917	3295	13%
Fontgary Road East of Fonman Road	5130	5665	10%
Fontgary Leisure Park Access	774	774	0%
Fontgary Road West of Fonman Road	2695	2852	6%
Porthkerry Road East of Station Road	5977	5785	-3%
Station Road	1843	1843	0%
Fontgary Road	6112	5686	-7%
Porthkerry Road East of Site Access	7690	10716	39% (7% above 10,000)

Site Access	0	4551	na
Porthkerry Road West of Site Access	7690	7732	1%
Porthkerry Road East of Pentir Y De	12307	15333	25%
Pentir Y De	7016	7016	0%
Porthkerry Road West of Pentir Y De	7690	10716	39% (7% above 10,000)
A4226 East of Tredogan Road	10086	10086	0%
Tredogan Road South	1791	1791	0%
Dragonfly Drive	417	417	0%
B4265 West of Tredogan Road	9528	9528	0%
Tredogan Road North	272	272	0%
A4226 East of Port Road	25078	28104	12%
Port Road	15697	18723	19%
A4226 West of Port Road	9849	9849	0%
A4226 East of Waycock Road	22566	24576	9%
B4266	21419	21968	3%
A4226 West of Waycock Road	24660	27690	12%
Waycock Road	10637	11108	4%
A4226 East of Colcot Road	29012	31021	7%

Colcot Road	14057	14057	0%
A4226 West of Colcot Road	26976	28985	7%
A4050 North of Barry Docks Link Road	35890	37407	4%
A4231 Barry Docks Link Road	21993	22486	2%
A4050 West of Barry Docks Link Road	28338	30347	7%

As detailed in Section 3: Assessment Methodology and Significance, EPUK Guidance considers a significant change where there is a change in traffic by ±5% or ±10% on a road with AADT flows of 10,000 or more (5,000 if narrow and congested).

It is clear from chapter 4 that there are no air quality issues currently identified in this area. Furthermore, whilst there are short periods of traffic congestion, traffic is predominantly free flowing outside of the peak hours. In addition, the highway is wide on the roads with higher vehicle flows, which should allow pollutants to disperse more freely than they would in a city centre location. It is therefore clear that, in consideration of the development's location, it would be more appropriate to classify a significant increase in traffic as a 10% increase rather than a 5%. Furthermore, this increase should only be considered significant on roads with flows of more than 10,000 vehicles.

The result in Table 7 shows a significant increase (above 10% increase on flows above 10,000 vehicles) on the following links:

1. Porthkerry Road East of Pentir Y De
2. A4226 East of Port Road
3. Port Road
4. A4226 West of Waycock Road

It is noted that links 1 to 4 are strategic in characteristic and are located significant distance from nearby sensitive receptors. Thus it is not considered likely that the increases in flow forecast on these roads will have a material impact in air quality terms, particularly given that the VoG monitoring data in this area shows recorded NO_2 and PM_{10} pollution concentrations that are well below the AQS thresholds.

Parking would be for long-term use and as such car park turnover would be low and on this basis the air quality impact should be **negligible**.

It is also noted that the development is not forecast to generate significant numbers of HDV movements and on this basis the impact from HDV movements is forecast to be **negligible**.

Based on the results above it is clearly not appropriate to undertake a formal air quality assessment of the traffic emissions from this development. It is also noted that the proposed development and assessed traffic network are not located within or near to an AQMA or potential AQMA. In addition, VoG have also confirmed

that they have no Air Quality concerns in this area and that, on this basis, the development is unlikely to create a significant impact.

5.2.2 Qualitative Assessment of Emissions from Heat and Power

EPUK Guidance recommends that consideration should be given to the impacts of centralised boilers or CHP plants. The schools heating and power plant has yet to be confirmed, however, the detailed specification, and installation, of any plant would be in line with requirements of current Building Regulations. The site is also not located within or close to an AQMA or potential AQMA and consequently it is considered that no unacceptable effects on air quality at local existing and future receptors would occur as a result of this plant.

Therefore, the effect on local air quality associated with the operation of the completed Development's proposed plant is considered to be **negligible**.

The specification of the boiler and power plant will be made available prior to development construction. This specification will include details regarding stack heights.

6. Mitigation Measures

6.1 Construction

A range of environmental management controls will be developed with reference to the BRE guidance 'Controlling Particles, Vapour and Noise from Construction Sites'. These will be detailed in an Environmental Management Plan (EMP) with the objective to prevent the release of dust entering the atmosphere and/or being deposited on nearby receptors. Such measures, which will be adopted and secured through planning obligations and/or appropriate planning conditions, will include:

- Routine dust monitoring at sensitive residential locations, particularly those close to the construction site boundary, with the results and effectiveness of controls reviewed at regular meetings;
- Damping down surfaces during dry weather;
- Erection of appropriate hoarding and/or fencing to reduce dust dispersion and restrict public access;
- Appropriate handling and storage of materials, especially stockpiled materials;
- Restriction of drop heights onto lorries and other equipment;
- Use of a wheel wash, limiting of vehicle speeds to 5 mph, avoidance of unnecessary idling of engines and routing of Site traffic as far from residential, educational and commercial properties as possible;
- Fitting all equipment (e.g. for cutting, grinding, crushing) with dust control measures such as water sprays wherever possible;
- Use of gas powered generators rather than diesel if possible (these are also quieter) and ensuring that all plant and vehicles are well maintained so that exhaust emissions do not breach statutory emission limits;
- No fires will be allowed on the construction site; and
- Ensuring that a road sweeper is available to clean mud and other debris from hardstanding roads and footpaths.

Specific attention will be made to any construction activities that will inevitably take place close to the boundaries of the construction site and thus in close proximity to existing sensitive properties.

Such measures are routinely and successfully applied to construction projects throughout the UK, and are proven to reduce significantly the potential adverse nuisance dust impacts associated with the various stages of construction work.

Following the implementation of appropriate environmental management controls, at worst, the likely residual effects of construction-related dust on the nearby receptors would be **negligible**.

6.2 Qualitative Assessment of Completed Development

As detailed in Section 5 (Potential Effects), the proposed Development's air quality impact is forecast to be **negligible** and as such no mitigation measures are required. Nonetheless, it is noted that various measures are proposed by the TA which would further reduce impact, which include the introduction of a travel plan that will encourage a shift away from the private car to more sustainable forms of transport.

7. Summary and Conclusions

The construction of the proposed Development has the potential to affect local air quality in terms of on-site plant and vehicle emissions and dust.

A qualitative assessment of the effects from construction works has been carried out. Due to the distance of the nearest sensitive receptors to the Site, it is considered that dust from the Site, and emissions from plant operating on the Site, would have at worse a **major adverse** effect at surrounding sensitive properties. With the implementation of a range of appropriate site management practices to control dust emissions, effects associated with construction activities are considered to be **negligible**.

The effect of construction vehicles entering and leaving the Site should be **negligible** in the context of local background pollutant concentrations and existing local road traffic emissions.

The completed Development should not result in significant changes in HDV movements or total vehicle movements. In addition, based on the types of people using the development it is also considered that turnover of parked cars would be low. The heating and power plant will also be in accordance with current Building Regulations. It is also noted that the site is not located within or adjacent to an AQMA or potential AQMA. Therefore, based on EPUK Guidance, the potential air quality effects of the completed Development are also assessed as being **negligible**.

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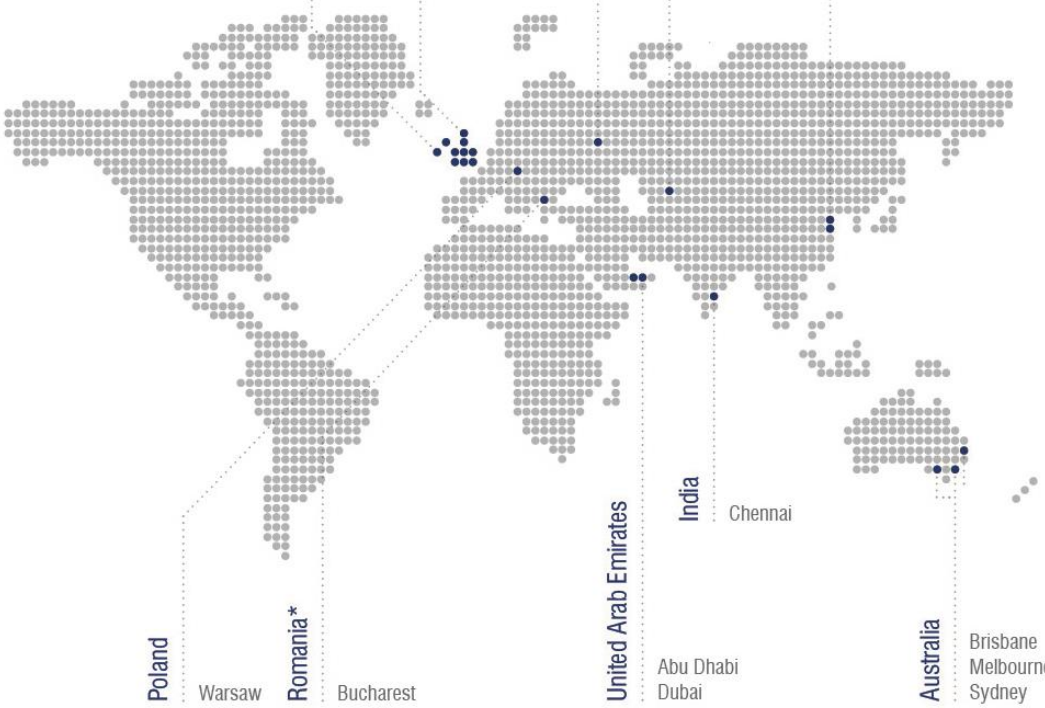

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