South West Wood Products Ltd

Land at Berth 31

Port of Barry

Environmental Statement

Chapter 4: Air Quality

Proposal: Planning application for a

Wood Processing Facility

07/08/2024 v2

ISOPLETH

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1 Introduction

1.1 This chapter provides an assessment of the potential air quality and dust impacts associated with the 'Berth 31' Development Proposals detailed in Chapter 3 of this ES titled Planning application for a Wood Processing Facility' which are hereafter termed the 'Berth 31 Proposals'. The location of the site is shown in Drawing AQ1.

1.2 In relation to the Development Proposals, 'Air Quality' relates to:

- Pollutants from vehicle traffic (particularly HGVs); and
- Dust (from wood import, processing and storage activities).

1.3 These impacts may be related to health and amenity as well as potential impacts at sites of ecological interest.

1.4 In 2015 the site was accepted through the planning process as being suitable for an external incinerator bottom ash (IBA) processing facility:

***2015/00360/FUL**. Wimborne Road, Barry. Facility for the recycling of incinerator bottom ash (IBA) to produce aggregates (IBAA) and the recovery of metals*

1.5 As described in Chapter 3 of this ES, the proposal is for a change of use to a wood processing facility. Ancillary to this there will be HGV parking. The existing office and welfare facilities will be updated of with temporary modular accommodation. The existing water tank, Maltese crosses and weighbridges will also be retained and used.

Background

1.6 The project background is described in full in Chapters 1 to 3 of this ES and will not be repeated here except where it is directly relevant to air quality. In summary, South West Wood Products is seeking to use the site at Berth 31 as a processing / recycling facility for virgin and waste wood.

2 Air Quality: Guidance, Regulation and Standards

UK Legislation

Air Quality Strategy

2.1 The United Kingdom Air Quality Strategy (UK AQS) for England, Scotland, Wales and Northern Ireland set out the Government's policies aimed at delivering cleaner air in the United Kingdom (UK). It set out a comprehensive strategic framework within which air quality policy will be taken forward in the short to medium term, and the roles that Government, industry, Natural Resources Wales (NRW), local government, business, individuals and transport have in protecting and improving air quality.

2.2 For each nominated pollutant, the UK AQS set clear, measurable, outdoor air quality standards and target dates by which these must be achieved; the combined standard and target date was referred to as the Air Quality Objective (AQO) or Air Quality Limit Value (AQLV) for that pollutant. These were maximum ambient pollutant concentrations that are not to be exceeded either without exception or with a permitted number of exceedances over a specified timescale.

2.3 The AQS framework included reference to pollutants which may be associated with wood processing, such as dust and smaller particles and oxides of nitrogen associated with vehicle transport.

2.4 The AQS was due to be reviewed by 2023 and the most recent version of the AQS was produced by the Department for Environment, Food and Rural Affairs (DEFRA) and published 28th April 2023[1]. However, this 2023 version applies to England (English Councils) only.

2.5 Welsh Ministers were under a legal duty to review and if appropriate modify the National Air Quality Strategy (NAQS) for Wales as set out under section 80 of the Environment Act 1995, following amendments by the Environment Act 2021. Ministers concluded that it no longer met their ambitions to improve air quality in Wales.

Clean Air Plan for Wales

2.6 In 2020, Welsh Ministers published the Clean Air Plan for Wales which set the strategic direction across multiple policy areas for the next decade. *The Clean Air Plan: Healthy Air, Healthy Wales* reflected the current air quality situation and circumstances in Wales. It is also framed within the context of Welsh Government policies and principles, including the Well-being of Future Generations (Wales) Act 2015.

2.7 Welsh Ministers therefore modified the National Air Quality Strategy for Wales in accordance with section 80 of the Environment Act 1995 by replacing the 2007 National Air Quality Strategy with the *Clean Air Plan* (2020). Air quality objectives at Table 2 as part of NAQS for Wales were retained.

Air Quality Standards

2.8 The Air Quality Standards (Wales) Regulations 2010 sought to transpose the Air Quality Framework Directive and also transpose the Fourth Daughter Directive within the UK.

2.9 The Environmental Improvement Plan 2023, provides long term and Interim Targets in order to further reduce population exposure to $PM_{2.5}$ however this applies to England only and has not been adopted in Wales at the time of writing. The air quality Standards and Objectives relevant to the Berth 31 Proposals and therefore considered within this report are presented in Table 4-1.

Table 4-1- Relevant Air Quality Limits and Objectives

Pollutant	Concentrations	Measured As
Particulate matter with a diameter of less than 10µm (PM_{10})(gravimetric)	50 µg/m^3 not to be exceeded more than 35 times per year	24 hour mean
	40 µg/m^3	Annual mean
Particulate matter with a diameter of less than 2.5µm ($PM_{2.5}$) (gravimetric)	20 µg/m^3	Annual mean
Nitrogen dioxide NO_2	40 µg/m^3	Annual mean

Local Air Quality Management

2.10 Local Authorities (LAs), including Vale of Glamorgan Council, have formal powers to control air quality through a combination of Local Air Quality Management (LAQM) and by use of their wider planning policies. They must do this in accordance with the requirements of *Local air quality management in Wales Policy guidance* (June 2017), referred to as PG(W)(17).

2.11 The results of the Vale of Glamorgan Council Review and Assessment of air quality are summarised in Section 4 of this ES chapter.

General Nuisance Legislation

2.12 Part III of the Environmental Protection Act (EPA) 1990 (as amended by the Noise and Statutory Nuisance Act 1993) contains the main legislation on Statutory Nuisance and allows Local Authorities and individuals to take action to prevent a statutory nuisance. Section 79 of the EPA defines as a potential Statutory Nuisance amongst other things, smoke, fumes, dust and smells

emitted from industrial, trade or business premises so as to be prejudicial to health or a nuisance. It also defines as a nuisance accumulation or deposit which is prejudicial to health.

2.13 In contrast to suspended particulate matter (i.e. PM_{10} and $PM_{2.5}$), there are no UK or European statutory standards that define the point at which deposited dust causes disamenity. 'Nuisance' is a subjective concept and its perception is highly dependent upon the existing conditions and the change which has occurred.

2.14 There are a number of 'custom and practice' dust thresholds in use; however these are based on old studies which are often equipment specific. More recent guidance recommends that site-specific thresholds may be agreed between the operator and the local planning authority which take into account baseline values.

2.15 Of particular relevance to the Berth 31 scheme, there are no guideline dust deposition rates for wood dusts, unlike the 200 mg/m^2/day often quoted as a control guideline for mineral dust.

2.16 Further guidance relating to deposition is given in relevant guidance such as that published by the Institute of Air Quality Management, described further below.

Planning Policy Wales

2.17 Planning Policy Wales (PPW) Edition 12, February 2024 describes that it 'sets out the land use planning policies of the Welsh Government. It is supplemented by a series of Technical Advice Notes (TANs), Welsh Government Circulars, and policy clarification letters, which together with PPW provide the national planning policy framework for Wales. PPW, the TANs, MTANs (minerals Technical Advice Notes) and policy clarification letters comprise national planning policy.'

2.18 Section 6.7 'Air Quality and Soundscape' provides Policy guidance in relation to air quality. Of direct relevance to the Berth 31 Development are the following paragraphs:

6.7.4 The planning system should maximise its contribution to achieving the well-being goals, and in particular a healthier Wales, by aiming to reduce average population exposure to air and noise pollution alongside action to tackle high pollution hotspots. In doing so, it should consider the long-term effects of current and predicted levels of air and noise pollution on individuals, society and the environment and identify and pursue any opportunities to reduce, or at least, minimise population exposure to air and noise pollution, and improve soundscapes, where it is practical and feasible to do so.

2.19 Also:

6.7.6 In proposing new development, planning authorities and developers must, therefore:

• address any implication arising as a result of its association with, or location within, air quality management areas, noise action planning priority areas or areas where there are sensitive receptors;

• not create areas of poor air quality or inappropriate soundscape; and

• seek to incorporate measures which reduce overall exposure to air and noise pollution and create appropriate soundscapes.

2.20 Also:

6.7.15 For the purposes of this section, potentially polluting development includes commercial, industrial, energy and agricultural or transport infrastructure. Such development should be located in areas where there is low potential for public exposure, or where its impact can be minimised. Novel or new development types may potentially cause pollution and should be carefully considered, and where appropriate, decisions should be based on the precautionary principle.

2.21 Although the PPW Guidance is supported by issue specific TANs there is no specific TAN for air pollution and / or dust. However, TAN 21 (Waste) does contain guidance relating to environmental protection. The general PPW Guidance in relation to air pollution are considered within this Air Quality Assessment.

The Environment (Air Quality and Soundscapes) (Wales) Bill

2.22 The Environment (Air Quality and Soundscapes) (Wales) Bill was introduced to the Senedd on Monday 20 March 2023, giving the Welsh Government greater ability to tackle air and noise pollution. The Bill is part of a package of measures to improve the quality of the air environment in Wales as it specifically proposes:

- to provide a framework for setting national air quality targets;
- to amend existing legislation relating to the national air quality strategy; local air quality management; smoke control; clean air zones/low emission zones and vehicle idling; and
- to place a duty on Welsh Ministers to promote awareness of air pollution.

2.23 Given Royal Assent in February 2024, The Environment (Air Quality and Soundscapes) (Wales) Act 2024 will give powers to Welsh Government to introduce new long-term targets for air quality under a national framework taking account of the latest scientific knowledge including the World Health Organisation Air Quality Guidelines

Local Planning Policy

2.24 As described above, the relevant local authority is Vale of Glamorgan Council. The Vale of Glamorgan Local Development Plan (LDP) 2011-2026 provides the local planning policy framework for the Vale of Glamorgan and was adopted by the Council on 28th June 2017.

2.25 The LDP 2011-2026 Policies of relevance to the proposed Berth 31 Development include:

'POLICY MD7 - ENVIRONMENTAL PROTECTION

Development proposals will be required to demonstrate they will not result in an 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;

….

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

…'

2.26 Also:

POLICY SP8 -SUSTAINABLE WASTE MANAGEMENT

Development proposals will be favoured which support the provision of a network of integrated waste management facilities which assist in meeting the waste management capacity identified in the national collections, infrastructure and markets sector plan.

The following locations are considered suitable for the development of in-building waste management solutions:

• *Atlantic Trading Estate;*

• *The operational port of Barry Docks;*

• *Llandow Trading Estate; and*

• *On suitable existing and allocated employment sites identified in Policy MG9.*

The provision of open air facilities such as civic amenity sites, composting and recycling of commercial and demolition waste will also be permitted on existing class B2 and B8 employment sites, operational mineral working sites or within or adjoining existing farm complexes where they do not conflict with existing or proposed neighbouring uses.'

2.27 Also:

'POLICY MD2 - DESIGN OF NEW DEVELOPMENT

In order to create high quality, healthy, sustainable and locally distinct places development proposals should:

1. Be of a high standard of design that positively contributes to the context and character of the surrounding natural and built environment and protects existing features of townscape or landscape interest;

……

8. Safeguard existing public and residential amenity, particularly with regard to privacy, overlooking, security, noise and disturbance;

…..'

2.28 Also:

'POLICY MD20 - ASSESSMENT OF WASTE MANAGEMENT PROPOSALS

Development proposals for waste management facilities will be permitted where:

….

3. It is demonstrated that the development would not result in unacceptable harm to health, the environment or to the amenity of neighbouring land uses; and

….'

2.29 The Council is preparing a new Local Development Plan (LDP) to replace the existing adopted LDP. The new Plan will be called the Replacement Local Development Plan (RLDP) and will cover the period 2021 – 2036.

Other Guidance Document: IAQM Guidance

2.30 The Institute of Air Quality Management (IAQM) is the professional body for air quality professionals and aim to be the authoritative voice for air quality by maintaining, enhancing and promoting the highest standards of working practice in the field. To this end it has published a series of guidance notes of relevance to the assessment of air quality for planning purposes.

2.31 The IAQM and Environmental Protection UK (EPUK) have together published guidance[2] to help ensure that air quality is properly accounted for in the development control process. It clarifies when an air quality assessment should be undertaken, what it should contain, and how impacts should be described and assessed. Importantly, it also sets out a recommended approach to assess the significance of impacts and effects.

2.32 The guidance also states that best-practice design and operational measures should be recommended and applied to all developments that require an Air Quality Assessment, to reduce emissions and human exposure to poor air quality.

2.33 The IAQM has also released the document[3] '*Guidance on the Assessment of Mineral Dust Impacts for Planning*' in June 2016. Designed specifically for the planning process, the guidance is based upon the judgement of the IAQM Minerals Working Group. The IAQM guidance provides an effective methodology in the absence of any other guidance for the assessment of dust from mineral sites. Although the Berth 31 Development is not a minerals site, the risk assessment which is based on exposure resulting from consideration of source → pathway → receptor is generally relevant to wood processing in the absence of any sector specific guidance.

3 Assessment Methodology

General Approach

3.1 The following method is based on that advised by the IAQM and is in accordance with the requirements of the EIA Regulations and PPW.

Assessment of Dust Impacts

3.2 As described above, dust arising from wood processing operations has the potential to reduce amenity in the local community and damage sensitive ecological receptors due to visible wood dust and wood dust soiling / deposition. The larger wood dust particles are typically referred to as 'deposited' or 'disamenity' dust.

3.3 Smaller dust particles can remain airborne for longer, potentially increase local ambient concentrations of suspended particulate matter (e.g. PM_{10} and $PM_{2.5}$) associated with health effects.

3.4 IAQM Guidance presents a simple distance-based screening process to identify those sources where the dust impacts may be significant and require further assessment. The IAQM guidance uses PM_{10} as the health indicator of airborne particles.

3.5 Where a more detailed assessment is required, a basic assessment framework is presented which employs the Source → Pathway → Receptor approach to evaluate the risk of dust impacts and effects which incorporates the following elements:

- Description of site characteristics and baseline conditions;
- Estimation of dust impact risk; and
- Estimation of magnitude if likely effect.

3.6 The assessment methodology and associated matrices for the IAQM method is described fully in Appendix 4A.

Assessment of Vehicular Emissions

3.7 Atmospheric emissions related to the Development Proposals are primarily associated with the exhaust emissions from Heavy Duty Vehicles (HDVs). The assessment has been undertaken with reference to IAQM *Land-Use Planning and Development Control: Planning for Air Quality* (2017 v1.2).

3.8 The decision as to whether an assessment of potential impact is required is based upon the criteria set out in the EPUK[2] guidance. The criterion for assessment of air quality focuses on roads with relatively high changes in flows or high proportion of HDV traffic. The EPUK and IAQM guidance thresholds are as follows:

- LDV flows will change by 100 AADT within an Air Quality Management Area (AQMA);
- Light Duty Vehicles (LDV) flows will change by 500 AADT outside an AQMA;
- HDV flows will change by 100 AADT outside an AQMA; and
- HDV flows will change by 50 AADT within an AQMA.

3.9 If vehicle movements exceed the EPUK guidance criteria as a result of the Berth 31 Development, further assessment may be required.

Air Quality Significance Criteria

3.10 The Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017. Wales Statutory Instruments 2017 No. 567 (W. 136) require that:

4 (2) The EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the proposed development on the following factors:

(a) population and human health;

…..

(c) land, soil, water, air and climate;

3.11 Also, in Schedule 4:

'The description of the likely significant effects on the factors specified in regulation 4(2) should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development.'

3.12 This has resulted in the use of descriptors for the purposes of summarising impacts. The assessment of magnitude of effect for dust impacts is undertaken qualitatively and the criteria applied can be 'Adverse' or 'Beneficial' where not negligible. The magnitude will be judged as 'Slight', 'Moderate' or 'Substantial'. Whether an impact is 'significant' or 'not significant' may then

be judged by the assessor but is usually where an effect is moderate or substantial. A substantial effect may be overriding.

3.13 The IAQM guidance criteria for magnitude of effect and significance of impacts are consistent with those in the Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017.

4 Baseline

Site and Surroundings

4.1 Full details of the Site Location and Surroundings are provided in Chapter 2 and The Development Proposals are described in Chapter 3 of this Environmental Statement.

4.2 The Berth 31 development site is part of the Barry Docks estate and, although vacant at the time of writing, until recently it was in use in part for a similar operation to that sought in this application and a metals recycling operation. The application site has an area of 4.25ha . It is located in an industrial area which is allocated as employment land.

4.3 The site is accessed off Wimborne Road, which is the main access to the docks and which links directly to Fford y Mileniwm, the town of Barry's eastern by pass and distributor road.

4.4 The site is bounded on the northwest and south west by an existing screen bund, up to 8m in height. The south eastern boundary is with the dock. The site occupies relatively flat land at an elevation of around 7m to 9mAOD.

4.5 The site has been designed with due consideration of potential environmental and amenity impacts, including those relating to wood dust. The operation of the site will also be subject to dust control as detailed in a Dust Management and Mitigation Scheme (DMMS), as described later in this ES chapter. A draft DMMS has been prepared. This would be finalised and adopted prior to commencement of the Berth 31 development proposals.

Meteorology

4.6 With regard to dust, fugitive wood dust emissions occur when wood particles are disturbed and released by physical activities (i.e. loading, tipping, wood shredding / processing and transport). Stronger winds across fine material, or material of low density such as wood dust, can cause windblown dust emissions, often regarded as those greater than 5 m/s, for example:

- IAQM Guidance refers to '*Frequency of winds (>5 m/s) from the direction of the dust source on dry days'*
- European Monitoring and Evaluation Programme (EMEP) Guidance refers to '*percentage of time with unobstructed wind speed >19.3 km/h (5.36 m/s)*'

4.7 The most important climatological parameters governing the dispersion of dusts are therefore wind speed and direction.

4.8 However, rainfall is also an important climatological parameter in the generation of dust; rainfall will suppress dust at the source. According to guidance by Arup in relation to minerals sites (1995)[4] rainfall greater than 0.2mm per day is sufficient to suppress mineral dust emissions. This is consistent with the guidance value stated by EMEP/EEA[5] which refers to 0.254 mm (0.01 inch) precipitation as being sufficient to suppress mineral dust. The EMEP guidance (Section 3.3.5) confirms that *'on a day with that amount of precipitation [0.254mm], there is no dust from unpaved roads and stockpiles'*.

4.9 There is no specific guidance which states the volume of rain required to effectively suppress wood dust emissions from wood processing sites. However the mechanism remains the same in that there will be a higher potential for particulate emissions from dry wood material than wet material during storage and processing.

Rainfall

4.10 Rainfall data for the local area of the Site has been obtained from the Met Office[6] records with 1991 – 2020 mapped averages across the UK. The annual average number of days where the rate of rainfall exceeds 1mm is 159 days per year (43.5% of the year). Data for the Cardiff station provides a similar figure of 153 days where the rate of rainfall exceeds 1mm (58% 'dry' days per year).

Wind Speed and Direction Data

4.11 The closest observation station to the extension area is located at Cardiff (Rhoose) Airport. A wind rose five years for all wind speeds is presented in Figure 5-2. It can be seen that the majority of winds are from the west with winds from these sectors (250°–310°) occurring for 35.4% of the year.

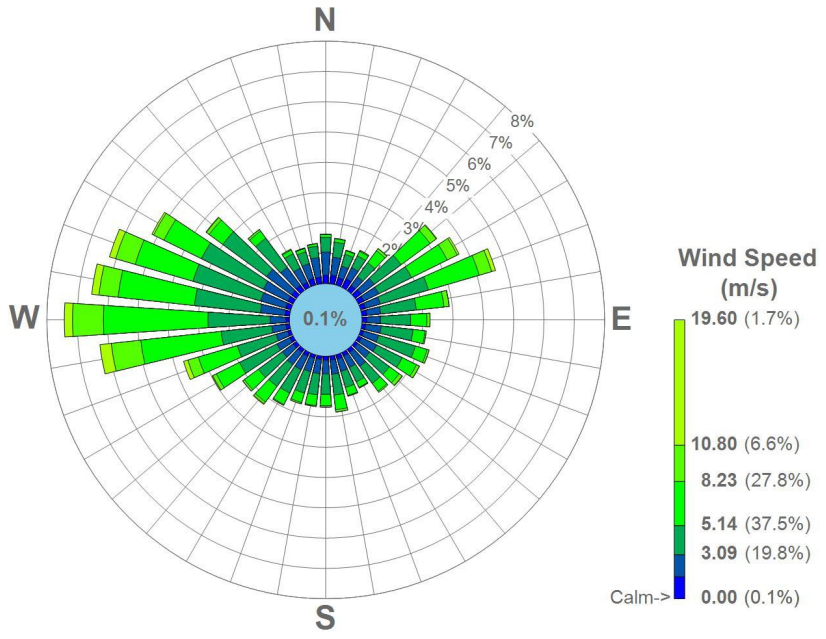

Figure 5-2 – All winds: Cardiff Observation Station (5 years)

4.12 This is particularly the case for the strongest winds which have the highest potential for dust release. A five year wind rose relating to winds above 5m/s is presented in Figure 5-3. On this basis, locations to the east of the site have the highest potential for dust impacts, which is the direction away from residents to the north of the Port of Barry.

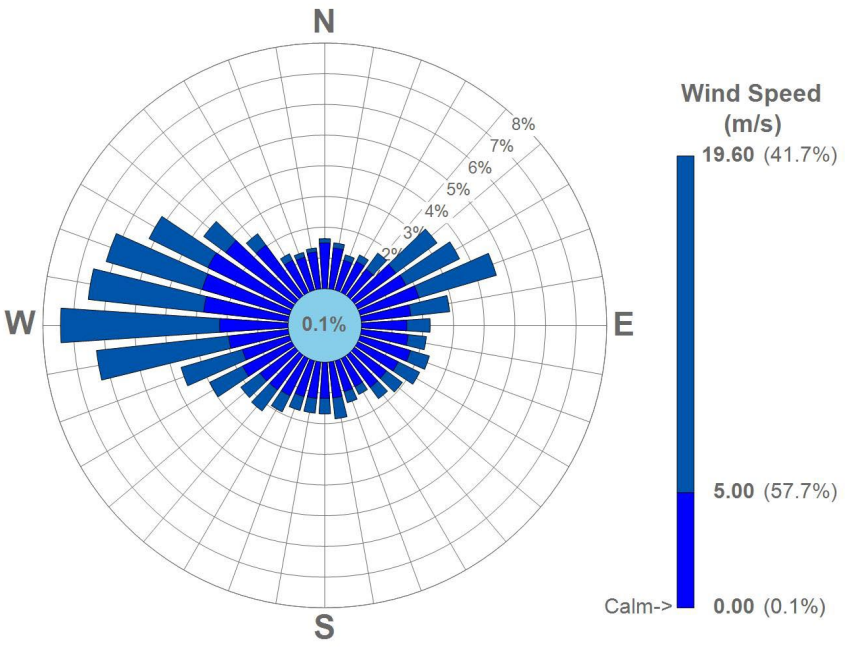

Figure 5-3 – Winds >5m/s: Cardiff Observation Station (5 years)

Existing Air Quality

Local Authority Review and Assessment

4.13 As required under Section 82 of the Environment Act (1995) (Part IV), Vale of Glamorgan Council has conducted an ongoing exercise to review and assess the air quality within its administrative area. The most recent LAQM Report is the Vale of Glamorgan 2023 Air Quality Progress Report (AQPR), dated September 2023.

4.14 The Vale of Glamorgan Council 2023 AQPR states in relation to air quality that, at present, the Vale of Glamorgan does not have any AQMAs.

4.15 All Air Quality Strategy pollutants in the district, including PM_{10} and $PM_{2.5}$ were considered by Vale of Glamorgan Council to be below the relevant AQO's at locations of relevant exposure.

Local Air Quality Monitoring

4.16 The Vale of Glamorgan Council undertook:

- automatic (continuous) monitoring at three sites during 2022; and
- non-automatic (passive) monitoring of NO2 at 50 sites during 2022.

4.17 Two of the automatic sites are in the Barry area:

- Dock View Road, Barry (Roadside, OS GR 312401, 167947)
- Buttrills Road, Barry (Roadside, OS GR 311269, 168362)

4.18 The NO_2 monitoring results at these locations are as follows:

Table 4-2 - NO_2 monitoring Results: Automatic Sites (µg/m^3)

Location	2020	2021	2022
Dock View Road, Barry	20.2	26.6	31.1
Buttrills Road, Barry	19.0	36.3	----

4.19 The most relevant non-automatic (passive) monitoring locations are as follows:

- ID66: Roadside, OS GR 313342 168823;
- ID114: Roadside, OS GR 312585 168171;

- ID115: Roadside, OS GR 312677 168171;
- ID117: Roadside, OS GR 313612 166807; and
- ID120: Roadside, OS GR 312405 167951.

4.20 The monitoring results at these locations are as follows:

Table 4-3 - NO_2 monitoring Results: Passive Sites (µg/m^3)

Location	2020	2021	2022
ID66	23.8	24.4	22.4
ID114	11.5	11.8	11.6
ID115	21.9	23.0	23.2
ID117	21.9	22.2	22.3
ID120	13.2	14.8	14.8

4.21 All of the above monitoring results are below the annual average NO_2 objective, as would be expected (given that no AQMAs have been declared).

4.22 The particulate matter (PM_{10} and $PM_{2.5}$) monitoring results at Dockview Road are as follows:

Table 4-4 – Particulate monitoring Results: Dockview Road (µg/m^3)

Particulate Fraction	2020	2021	2022
PM_{10}	7.3	12.8	6.1
$PM_{2.5}$	4.4	3.8	4.0

4.23 All of the above monitoring results are below the annual average particulate objectives, as would be expected (given that no AQMAs have been declared). This is summarised in the AQPR as follows:

'The results of the monitoring indicate that recorded $PM_{2.5}$ concentrations at all monitored locations are within the 20µg/m^3 EU Limit Value. The Dock View Road site also displayed $PM_{2.5}$ annual mean concentrations within the WHO Guideline of 5µg/m^3 for its period of operation from January to June 2022'

DEFRA Background Maps

4.24 Background pollutant concentration data on a 1km x 1km spatial resolution is provided by DEFRA and is routinely used to support LAQM and Air Quality Assessments. The data is based upon 2018 values and then projected forward for future years. Mapped background concentrations of NO_2, PM_{10} and $PM_{2.5}$ were downloaded for the grid square in which the Berth 31 Development is to be located and are presented in Table 4-5.

Table 4-5 – DEFRA Mapped Backgrounds

NO_2	PM_{10}	$PM_{2.5}$
11.7	12.4	8.3

4.25 The DEFRA predicted values are consistent with the Vale of Glamorgan monitoring data in that they show concentrations of these pollutants well below relevant standards / objectives.

Dust Monitoring

4.26 A Dust Management and Mitigation Scheme (DMMS) will be in place at the proposed Berth 31 development prior to operation of the wood processing site, subject to agreement with relevant consultees.

4.27 Monitoring will be consistent with the approach described in IAQM Guidance which states that this can range from visual inspections, dust deposition/flux monitoring, to real-time PM_{10} continuous monitoring locations, if necessary. The monitoring approach should be tailored to the risk of impact (and effect) at receptor locations.

5 Receptors

5.1 There is the potential for both human and ecological receptors to be impacted by the Berth 31 development. As such, both have been considered as detailed below. The location of the site in relation to potential receptor locations is shown on Drawing AQ1.

Human Receptors

5.2 Receptors considered in this assessment relate to the proximity to the Berth 31 site itself (mainly dust) and the roads used by the site traffic (mainly exhaust pollutants).

5.3 The nearest residential properties are located to the west and north of the site, just over 300m at the closest point. Outline planning permission for residential properties at the former sidings, to the north west on the other side of Ffordd y Mileniwm, was granted in March 2023 (ref: 2020/00775/OUT) and a reserved matters application was granted on 10th May 2024 (Ref: 2023/01140/RES). The location of this development is shown on Drawing AQ1.

5.4 The Design Manual for Roads and Bridges (DMRB) method considers any receptor within 200m of a road source to be potentially affected. In the event that the Development Proposals generates vehicle movements in excess of the EPUK / DMRB criteria, a review of affected roads and sensitive receptors would be undertaken.

5.5 In the absence of a specific distance threshold for wood dust, 200m has also been taken as a screening distance for site emissions (i.e. dust from processing and storage of wood). This is consistent with the guidance relating to dust sources such as construction and demolition.

5.6 There are not currently any residential receptors which are within 200m of the site. However, those approved under application refs 2020/00775/OUT and 2023/01140/RES would have the future potential to be impacted by both wood dust and air pollution. Receptors within this scheme have been considered as shown in Table 4-6 below and drawing AQ1.

Table 4-6 – Assessment Receptors

ID	Description	OS GR Xm	OS GR Ym
HR1	2023/01140/RES: west	312841.8	168408.9
HR2	2023/01140/RES: middle	312934.8	168450.1
HR3	2023/01140/RES: east	312979.0	168457.4

5.7 These receptors are approximately 200m from the site boundary, but approximately 380m from the wood processing area which will be located towards the south of the site.

Ecological Receptors

5.8 IAQM Guidance (Box 5) defines a medium sensitivity ecological receptor as being locations where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown.

5.9 IAQM Guidance (Box 5) defines a Low sensitivity ecological receptor as being:

- locations with a local designation where the features may be affected by dust deposition; and
- an indicative example is a Site of Special Scientific Interest (SSSI) with dust sensitive features.

5.10 The Guidance states that some non-statutory sites (i.e. local wildlife sites) and/or locations with very specific sensitivities may also be considered if appropriate. The level of dust deposition likely to lead to a change in vegetation is very high (over 1 g/m2/day) and the likelihood of a significant effect is therefore very low except on the sites with the highest dust release close to sensitive habitats.

5.11 A search of statutory designated ecological sites within a 400m radius of the Berth 31 development has been completed and there are no potential dust sensitive sites relevant to this site.

5.12 In terms of the wide area, there are two SSSI within 2km but both are designated for geological rather than ecological reasons (Bendrick Rock and Barry Island). The Barry Woodlands SSSI is approximately 2km from the site. As such there are no SSSI within a distance where they would have the potential to be impacted by wood dusts or other emissions to air from the site.

5.13 The nearest non statutory conservation site is a Site of Importance for Nature Conservation (SINC) known as the Cadoxton Wetlands, at approximately 130m from the site. This is an area of restored wetland comprising tall herb, scattered scrub and grassland habitat, together with two small lakes and a reedbed. The Cadoxton River SINC is a canalised river at approximately 190m from the site. There are no other sites within 400m.

Heritage Receptors

5.14 A search for protected heritage sites within a 200m radius of the Berth 31 development has been completed and there are no potential dust sensitive heritage sites relevant to this scheme, the closest being the former Dock Offices to the north-east of Number 2 Dock (Grade II* listing) , the former Customs House and Mercantile Marine Office at the southern end of Dock View Road (Grade II listing) and Cadoxton Court, off Gladstone Road, 500m north-west of the site (Grade II listing). As such, heritage receptors have not been considered further.

6 Vehicle Pollution: Impacts & Comparison

Traffic Data: Links

6.1 Traffic Data for the Berth 31 development has been provided by Clarke Bond (UK) Limited, the appointed traffic consultants for Chapter 7 of this Environmental Impact Assessment.

6.2 As described earlier, a maximum annual tonnage of wood is proposed of 250,000 tonnes. The wood will arrive at site in HGVs, but the intention is for around 125,000 tonnes of the wood product to leave via a ship from the docks, being loaded direct from Berth 31. The export via the docks area will have a beneficial effect on the HGV trips onto the road network.

6.3 All traffic will access / egress via the Wimborne Road and will be distributed onto the network to the south (Hayes Road) or to the north then

- south west to the Docks along the FFordd Y Mileniwm;
- north onto the Gladstone Road (Cadoxton); or
- north east along the Cardiff Road A4055

Proposed Development: Traffic Predictions

6.4 The maximum predicted traffic movements associated with the Berth 31 Development are 124 HGV as an AADT at the site entrance, which is then distributed onto the network.

6.5 Clark Bond, the transportation advisors for the project, have advised that in terms of network distribution, the split is predicted to be:

- 89 HGV (AADT) along Wimborne Road, join the A4055 and then travel north from the roundabout with the A4231 (AKA the Barry Docks Link Road); and
- 35 HGV (AADT) along FFordd Y Mileniwm towards Harbour Road A4055 – A4050 – B4266 – A4226

Assessment of Effects and Significance – Vehicle Emissions

6.6 IAQM / EPUK *Land-Use Planning & Development Control: Planning for Air Quality (January 2017)* Table 6.2: Indicative criteria for requiring an air quality assessment states that, where HDV flows are less than 100 AADT, no further assessment is required.

6.7 As can be seen above, this screening threshold is not exceeded in any year for any of road links used by vehicles associated with the Berth 31 Development where annual average receptors (e.g. residences are present).

6.8 As none of the roads in the network meet the EPUK / IAQM (or DMRB) screening criteria, then the impact of the Development Proposals can be considered to be 'neutral' in terms of local air quality and no further air quality assessment is required. The impacts are 'Not Significant'.

6.9 Traffic pollution from the Development Proposals does not conflict with the PPW or Local Planning Policy such as LDP MD7.

Summary

6.10 In summary, the proposed Berth 31 development would result in numbers of HGV trips which would be below air quality screening thresholds for this location. This is true even when considered as a worst case scenario, working at a maximum 250,000 tonnes per annum and all material by road haulage (the intention being that 50% of the exports will be by ship). For this reason, there is no requirement to further consider the potential effects of HGV exhaust emissions., which are 'neutral' in terms of local air quality and are therefore 'Not Significant'.

7 Wood Dust: Impacts & Comparison

Screening Assessment: PM_{10} and Deposited Dust

7.1 On the basis of the IAQM screening criteria an assessment of deposited dust and PM_{10} is required at dust sensitive human and ecological receptors within 200m of the proposed operational areas, as shown in Table 4-4 and Drawing AQ1. These will be the receptors with the highest potential for deposited dust and PM_{10} / $PM_{2.5}$ impacts.

Further Assessment – PM_{10} / $PM_{2.5}$

7.2 The IAQM guidance states that if the PM_{10} background concentration is less than 17µg/m³ it is considered unlikely that any process contribution from the Berth 31 Development would lead to an exceedance of the annual objective. On the basis of the background concentration (2024) predicted to be a maximum of 12.4 µg/m³, further assessment of the potential process contribution from the proposed operations have not been undertaken.

7.3 The exposure would also be below the benchmark value of 28µg/m³, the value provided in DEFRA LAQM.TG(22)[7] as an indication of the relationship between annual mean concentrations and the risk of the daily PM_{10} objective being exceeded. On this basis, the impact on the 24-hour AQO is also considered to be 'not significant'.

Further Assessment – Deposited Dust

Areas of Assessment

7.4 The plan reference LMM-072-02A-A0 1 TO 500 shows the general arrangements for site layout. All plant used on site will be mobile. Processing operations will be located in the south west corner, the furthest point from the receptors listed in Table 4-4.

7.5 The majority of the site will be used for wood storage and the precise configuration of this will fluctuate over the course of a year in response to supply and demand. The environmental permit will provide for the detailed control of wood levels covering matters such as separation distances, heights and sizes of storage piles. It is likely that stockpiles will be less than 8m in height.

Site Operations

7.6 The wood material to be processed is both virgin wood and end of life timber, e.g. manufacturing offcuts, waste wood. The wood is sourced from forestry operations, manufacturing, and construction, demolition, commercial, industrial and municipal (household) waste streams. This includes the wood collected by local authorities in their household recycling facilities.

7.7 The processing operations involve the sizing of the waste to meet set specifications dependant on the product being made. The machinery and plant involved in processing operations includes loading shovels, excavators, screeners, shredder, trommel and eddy current.

7.8 The main processing plant is specialist mobile wood shredding equipment, such as a Doppstadt, which includes magnets to remove any metals (e.g. nails) that may be in the wood. Mobile screens also form part of the processing operations grading the wood by size. The other main elements of plant are the machines used to load the processing plant and move material about site, loading shovels and 360-degree excavators.

7.9 The volumes required to be processed at times to meet demand and the established industrial location of the site mean that it will be potentially operational 24hrs per day and 7 days per week loading ships.. It is expected that processing will be restricted to 0700- 23-00..

7.10 The majority of the site will be used for wood storage and for most of the time there will be limited activity other than the periodic movement of the wood. Storage capacity is required to accommodate the spring/summer arisings ensuring there is sufficient material available for processing during the autumn/winter months. This translates into a peak of storage in the summer with the converse of almost empty yards in the winter.

Estimation of Residual Source Emissions

7.11 The residual source emission (the potential wood dust emission after designed-in mitigation measures have been taken into account) has been determined as shown in Table 4-7.

Table 4-7 – Residual Source Emissions

Potential Dust Generating Activity	Factors contributing to Emission Potential (& designed in) control measures	Residual Source Emission
Delivery to Site	Maximum of 62 HGV imports per day predicted (based on 250kTpa) All vehicles importing wood will be sheeted	N/A
On-Site Transportation	loading shovels and 360-degree excavators <10 heavy plant simultaneously active. Water bowser available at all times on haul roads	Small
Wood Processing	mobile wood shredding equipment misting sprays available when conditions require use	Medium

Potential Dust Generating Activity	Factors contributing to Emission Potential (& designed in) control measures	Residual Source Emission
Wood Stockpiles and Exposed Surfaces	Peak storage in summer. All stockpiles <8m in height, regulated under the site Permit. Piles of processed materials stored in bays to reduce wind-whip when not being loaded.	Small
Export from Site	Maximum of 62 HGV exports per day predicted (based on 250kTpa) All vehicles exporting processed material will be sheeted	N/A

Determination of Pathway Effectiveness

7.12 The effectiveness of the pathway is determined by the site specific factors of distance and direction of individual receptors relative to the prevailing wind direction. The 'pathway effectiveness' has been determined for each identified receptor location within 200m of the site as presented within Table 4-8 against potentially dust generating activities.

7.13 The frequency of high winds (>5m/s) from the area of operation has used the 5 year dataset from Cardiff Rhoose met station, as shown in Figures 4-2 and 4-3. The IAQM criteria and matrices for determining the pathway effectiveness are presented in Appendix 5A and summarised in Table 4-8 for the Berth 31 development.

Table 4-8 – Pathway Effectiveness

Receptor	Proximity to Source (zone)	Downwind Sector Start (degrees)	Downwind Sector End (degrees)	% all days (winds >5m/s)	Frequency of exposure	Pathway effectiveness
HR1	100m - 200m	100	140	2.7	Infrequent	Ineffective
HR2	100m - 200m	130	170	1.8	Infrequent	Ineffective
HR3	100m - 200m	170	200	1.7	Infrequent	Ineffective

7.14 The pathway effectiveness at all receptors is classed as 'ineffective' in relation to the Berth 31 development proposals for all receptors.

Dust Impact Risk and Magnitude of Effect

7.15 The 'residual source emission' and 'pathway effectiveness' have been combined as per the IAQM guidance to determine the 'dust impact risk'. To allow a conservative assessment, the maximum residual source emission of 'Medium' has been applied (refer to Table 4-9). The sensitivity of the

receptor is then taken into account to predict the 'magnitude of effect', as per the IAQM matrices presented in Appendix 4A.

7.16 For phases with an 'ineffective' pathway to even the most sensitive receptors, the risk (and effect) will be 'negligible' and therefore 'not significant'. It can be seen that this is the case for all receptors:

Table 4-9 – Dust Impact Risk & Magnitude of Effect

Receptor	Dust Impact Risk	Receptor Sensitivity	Magnitude of Effect
HR1	Negligible Risk	High	Negligible Effect
HR2	Negligible Risk	High	Negligible Effect
HR3	Negligible Risk	High	Negligible Effect

7.17 The IAQM assessment has identified that for all receptors, the magnitude of effect from dust emissions from the Development Proposals would be 'Negligible'. As such the impacts to air on human receptors from the Development Proposals would be 'not significant'.

Ecological Receptors: Dust Impact Risk

7.18 As described above, the only sites within 400m of the site are the SINCs Cadoxton Wetlands and Cadoxton River SINC.

7.19 Local sites may be regarded as 'low sensitivity' receptors in some cases, particularly those locations with a local designation where the features may be affected by dust deposition (i.e. with dust sensitive features).

7.20 There is no evidence that these sites are in any way sensitive to deposition of wood dusts. The wood dusts will not be acidic or alkaline (as opposed to cement dusts, for example) and the sites are wetland habitats / rivers so any deposited dusts would be wetted naturally.

7.21 IAQM Guidance states that:

'Professional judgement is required to identify where on the spectrum between high and low sensitivity a receptor lies, taking into account the likely effect and the value of the ecological asset.'

7.22 In this case the SINC is a local designation and there is no evidence that these sites are in any way sensitive to deposition of wood dusts. As such the risk is negligible.

8 Mitigation Measures

Vehicle Emissions

8.1 The predicted effects of the Development Proposals on local air quality are considered to be 'neutral' in accordance with the screening guidance used in this assessment. No additional mitigation is therefore considered to be required.

Wood Dust Emissions

8.2 The outcome of the IAQM dust assessment for the Development Proposals has predicted a 'Negligible' effect at all receptor locations subject to basic (standard) mitigation measures such as sheeting of vehicles when on the wider highways network.

8.3 The Berth 31 development therefore does not considered to conflict with Planning Policy Wales and Local Planning Policy such as LDP MD7.

8.4 Designed in measures that form the working scheme that have been taken into account within the assessment include the following:

- Location of processing area (away from receptors);
- sheeting of vehicles to and from site;
- Misting sprays when processing wood in dry conditions;
- Good housekeeping (reduction of dusty materials on surfaces);

8.5 A DMMS will be finalised and will be adopted prior to works being commenced for the Berth 31 Development. This will be focussed on the mitigation of impacts through effective Best Available Techniques (BAT) to control dust emissions. Furthermore, the site will be regulated by National Resources Wales for issues including dust.

8.6 A summary of the measures to be contained within DMMS are likely to include the following:

- Routine checks undertaken by the site manager, ensuring regular staff training with regard to dust control;
- An established dust complaint procedure;
- Daily inspections of visible dust emissions across the boundary; and

- All dust control equipment (i.e. water sprays and bowsers) to be maintained and operated in accordance with manufacturer's instructions.

8.7 The BAT dust control measures contained within a DMMS will be of a high standard in accordance with industry good practice. It is considered likely that the measures contained in the DMMS (as well as the DMMS itself) will be subject to Planning Condition.

9 Residual & Cumulative Effects

Residual Effects

9.1 Residual effects are those impacts that cannot be reasonably mitigated. Appropriate dust mitigation and management measures will be applied. Such measures are generally accepted by regulatory bodies as providing effective control against the impacts of airborne dust.

Fine Particulate Matter

9.2 The IAQM risk assessment indicates that the existing levels of particulates are well below the relevant annual objective and are unlikely to significantly increase.

Deposited Dust Assessment

9.3 Following the implementation of the control and best practice measures the residual source emission for each of the activities has been reviewed.

9.4 The IAQM risk assessment has shown that the effects are 'not significant' at all receptor locations for the Development Proposals.

Cumulative Effects

9.5 In addition to the established baseline air quality, an energy recovery facility (described as the Barry Biomass plant), was consented in 2016. . The location of this site is shown on Drawing AQ1. A retrospective application for amendments was refused earlier this year.

Application No. 2023/00032/FUL *Retrospective full planning permission for development comprising a wood fired renewable energy plant and associated structures without complying with Condition 5 (Drawings) attached to planning permission 2015/00031/OUT at Barry Biomass Renewable Energy Facility, David Davies Road, Barry*

9.6 The dispersion modelling assessment included with the application (Tables 9.24 and 9.25) confirm that predicted impacts of annual and 24 hour PM_{10} and $PM_{2.5}$ are less than 1% of the relevant limits and therefore negligible.

9.7 The report to Committee for application 2023/00032/FUL confirmed that:

'In relation to operational phase impacts, it was noted that dispersion modelling has been carried out to assess the process contributions and predicted environmental concentrations of various pollutants on various human and ecological receptors in the local area.'

'It was also noted that the assessment states monitoring of pollutant concentrations within the exhaust from the stack will be undertaken on a regular basis in accordance with the requirements of the Permit granted by NRW, that the site is subject of monitoring and several management plans, and an environmental management system is in place which accords with international standards.'

'It was stated that the concentrations of pollutants likely to be emitted would be below the relevant air quality standards set for human health at all modelled receptors.'

'It was noted that a Human Health Risk Assessment has also been undertaken which confirms that the exposure of individuals to pollutants, even in a very worst case scenario, would not be significant during normal or abnormal operating conditions.'

'It was stated that SRS [Shared Regulatory Services (Environment – Air Quality)] agree with the findings of the operational assessment, and that results demonstrate that the likely impact on local air quality would be negligible and no mitigation would be required.' [my emphasis]

9.8 As such, although the setting is at the dockside and within an established industrial area, no other development has been identified which would be likely to give rise to a significant risk of cumulative impact over and above that already accounted for in the baseline concentrations.

10 Conclusions

10.1 The Development Proposals which seek to develop a wood processing and storage site at Berth 31, Port of Barry. This assessment has considered the potential impacts of these proposals on local air quality, including dust.

10.2 Potential impacts from dust emissions arising from the Development Proposals were assessed in accordance with the IAQM guidance in relation to the Air Quality Objectives and in terms of dust disamenity.

10.3 There is considered to be a low likelihood of an exceedance of the AQO's for PM_{10} and $PM_{2.5}$ given the low background concentrations. Site workers would be protected by HSE requirements.

10.4 Results from the disamenity (deposited) dust assessment indicate that the likely effects at considered human receptors would be 'not significant' at all receptor locations.

10.5 The impacts on ecological sites and heritage sites would also be 'not significant' due to the absence of sensitive sites close to the proposed Berth 31 development.

10.6 The assessment of vehicular emissions has not identified any adverse impacts associated with the Development Proposals on the basis that there would not be significant additional HDV movements above the daily HDV movement IAQM / EPUK screening threshold.

10.7 Taking into account the proposed dust control measures, the likelihood of any adverse effects on surrounding receptors associated with the Development Proposals is considered to be 'Not Significant'.

10.8 For the above reasons it is considered that the Development Proposals will not conflict with Planning Policy Wales or Local Planning Policy such as LDP Policy MD7 or SP8, MD2 and MD20.

10.9 All potential dust impacts are deemed to be reversible i.e. the risk of impact will cease on completion of activities at the Site, with no significant impacts on local air quality during the operation or following closure of the site.

[1] The AQS: Framework for Local Authority Delivery, DEFRA, 2023.
[2] *Land-use Planning and Development Control: Planning for Air Quality*. IAQM 2017.
[3] *Guidance on the Assessment of Mineral Dust Impacts for Planning*. IAQM 2016.
[4] Arup & Ove Arup Environmental. *Environment Effects of Surface Mineral Workings*. DoE, October 1995.
[5] EMEP/EEA air pollutant emission inventory guidebook 2016. *2.A.5.a Quarrying and mining of minerals other than coal*
[6] http://www.metoffice.gov.uk/public/weather/climate accessed May 2024
[7] DEFRA LAQM.TG(22) Table 7-5 – Screening Assessment of Fugitive or Uncontrolled Sources