



Land at Talbot Green

Air Quality Assessment

Talbot Green Developments Ltd

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Basis of Report

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1.0 Introduction

SLR Consulting Ltd (SLR) has been commissioned by Talbot Green Developments Ltd to undertake an air quality assessment in support of an “*Outline application for the erection of up to 180 dwellings with all associated open space, landscaping, drainage, engineering and servicing*” (the ‘Proposed Development’) on land to the east of the A4222 Cowbridge Road and south of the A473, Talbot Green, Wales (the ‘Site’).

The Site is in the administrative area of Rhondda Cynon Taf County Borough Council (RCTCBC) at the approximate National Grid Reference (NGR): x303820, y182335.

It is bounded by the following:

- The A473 to the north, with residential areas and the Kingdom Hall of Jehovah's Witnesses beyond;
- Sainsbury's supermarket, and open space due to be developed for retail use to the east;
- Y Pant Comprehensive School to the south with woodland beyond; and
- Leekes department store and the A4222 Cowbridge Road to the west, with commercial premises and residential properties beyond.

1.1 Scope of Assessment

Consultation¹ with the Environmental Health Officer (EHO) at RCTCBC was attempted to agree the assessment scope and methodology. No response has been received to date, however, the following scope of works, as proposed to RCTCBC, has been undertaken and is based on national and local planning policy and guidance, and established best practices:

- Baseline Evaluation;
- Construction Phase Assessment;
- Operational Phase Assessment; and
- Mitigation Measures.

¹ Email correspondence from SLR to RCTCBC Environmental Pollution team, dated 03/11/2025.



2.0 Relevant Air Quality Legislation and Guidance

2.1 Legislation

A dual set of regulations, separately applicable to National and Local Government, are currently operable within the UK.

2.1.1 National Obligations

The Air Quality Standards (Wales) Regulations 2010² (AQSR) transpose both the EU Ambient Air Quality Directive (2008/50/EC), and the Fourth Daughter Directive (2004/107/EC) within Welsh legislation. The AQSR includes Limit Values which are legally binding ambient concentration thresholds which, however, are only applicable at specific locations (Schedule 1: AQSR)³.

Following the UK's withdrawal from the EU, the Environment (Miscellaneous Amendments) (Wales) (EU Exit) Regulations 2020⁴ was introduced to mirror revisions to supporting EU legislation. As a result, the fine particulate matter (PM_{2.5}) Limit Value was reduced to 20µg/m³ (to be met by 2020).

The responsibility of achieving the AQSR is a national obligation for the Welsh Government who undertake assessments on an annual basis. Local Authorities have no statutory obligation to achieve the AQSR or the European equivalent Directives.

On 14 February 2024, the Environment (Air Quality and Soundscapes) (Wales) Act⁵ became law in Wales. The act supports delivery of the measures set out in The Clean Air Plan for Wales to improve air quality. The Act imposes a duty on Welsh Ministers to set at least one target, in regulations, in respect of annual mean fine particulate matter (PM_{2.5}) levels.

2.1.2 Local Obligations

Part IV of the Environment Act 1995⁶ (as amended by the Environment Act 2021⁷) requires the Welsh Ministers to review the national Air Quality Strategy (AQS) every five years and modify this if required. It also established the system of Local Air Quality Management (LAQM) for Local Authorities to regularly review and assess air quality within their respective administrative areas.

The Air Quality (Wales) Regulations 2000 (as amended by the Air Quality (Wales) (Amendment) Regulations 2002) provide the statutory basis for the Air Quality Objectives Local Authorities must adhere to under LAQM in Wales. PM_{2.5} is not currently part of the LAQM framework; however, as per the national AQS, Local Authorities are required to work towards reducing PM_{2.5}.

The ambient Air Quality Objectives of relevance to this assessment (collectively termed Air Quality Assessment Levels (AQALs) throughout this report) are provided in Table 2-1. These are primarily based upon the Air Quality Objectives Local Authorities are responsible for achieving. The PM_{2.5} AQSR AQAL has also been included for completeness.

² The Air Quality Standards (Wales) Regulations 2010, Wales Statutory Instrument No. 1433 (W. 126).

³ [Schedule 1 of the 2010 AQSR](#) provides the locations of the sampling points where the AQSR Limit Values can be assessed.

⁴ The Environment (Miscellaneous Amendments) (Wales) (EU Exit) Regulations 2020, Wales Statutory Instrument No. 1215 (W. 274).

⁵ Environment (Air Quality and Soundscapes) (Wales) Act 2024, Acts of Senedd Cymru, 2024 asc 2.

⁶ Environment Act 1995, 1995 chapter 25.

⁷ Environment Act 2021, 2021 chapter 30.



In 2020, the Welsh Government published The Clean Air Plan for Wales⁸ which sets out the over-arching strategic framework for air quality management in Wales. In 2023, following a review of the AQS for England, Scotland, Wales and Northern Ireland, which was published in 2007⁹, the Welsh Government formerly adopted The Clean Air Plan for Wales as the National AQS for Wales, to replace the 2007 document. However, the objectives of the former 2007 strategy were retained.

The Air Quality Objectives apply at locations where members of the public are regularly present and might reasonably be expected to be exposed to pollutant concentrations over the relevant averaging period (referred to as 'relevant exposure'). Table 2-2 provides an indication of those locations. Where any of the prescribed Air Quality Objectives are not likely to be achieved, the authority must designate an Air Quality Management Area (AQMA). For each AQMA, the local authority is required to prepare an Air Quality Action Plan (AQAP), which details measures the authority intends to introduce to deliver improvements in local air quality and achieve compliance.

Table 2-1: Relevant Ambient AQALs (Wales)

Pollutant	AQAL ($\mu\text{g}/\text{m}^3$)	Averaging Period
Nitrogen Dioxide (NO ₂)	40	Annual mean
	200	1-hour mean (not to be exceeded on more than 18 occasions per annum)
Particles (as PM ₁₀)	40	Annual mean
	50	24-hour mean (not to be exceeded on more than 35 occasions per annum)
Particles (as PM _{2.5})	20	Annual mean

Table 2-2: Human Health Relevant Exposure

AQAL Averaging Period	AQALs Should Apply At	AQALs Should Not Apply At
Annual mean	Building facades of residential properties, schools, hospitals etc.	Facades of offices Hotels Gardens of residences Kerbside sites
24-hour mean	As above together with hotels and gardens of residential properties	Kerbside sites where public exposure is expected to be short term
1-hour mean	As above together with kerbside sites of regular access, car parks, bus stations etc.	Kerbside sites where public would not be expected to have regular access

2.1.3 Environmental Protection Act 1990

The Environmental Protection Act 1990¹⁰ sets out provisions for the regulation of statutory nuisances. Section 79 sets out this statutory nuisance as, '*any dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance*'.

⁸ Welsh Government, The Clean Air Plan for Wales: Healthy Air, Healthy Wales, 2020.

⁹ Defra, The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, July 2007.

¹⁰ The Environmental Protection Act 1990. Available at <http://www.legislation.gov.uk/ukpga/1990/43/contents>.



Section 79 requires that, where a complaint of a statutory nuisance is made to it by a person living within its area, a Local Authority must take steps as are reasonably practicable to investigate the complaint. Proposed developments which result in the introduction of future sensitive receptors are however subject to the Agent of Change principle to ensure potential interactions with the existing environment and operations are assessed and mitigated to minimise restrictions being placed on existing businesses. Fractions of dust greater than 10µm (i.e. greater than PM₁₀) in diameter typically relate to nuisance effects as opposed to potential health effects and therefore are not covered within the UK AQS. In legislation there are currently no numerical limits in terms of what level of dust deposition constitutes a nuisance.

2.2 Ecological Habitats

Ecological habitats vary in terms of their sensitivity, perceived ecological value, geographic importance, and level of protection. Within the UK, there are three types of nature conservation designations: international/European, national and local designations, which are all provided environmental protection from developments, including from atmospheric emissions, with a greater level of protection afforded to the former, relative to the latter.

The Conservation of Habitats and Species Regulations 2017 (the 'Habitats Regulations')¹¹ introduces the precautionary principle for protected European sites, i.e. that projects can only be permitted to proceed; having ascertained that there will be no adverse effect on the integrity of the designated site. It requires an assessment to determine if significant effects (alone or in-combination) are likely, followed by an 'appropriate assessment' by the competent authority, if necessary. European sites include Special Areas of Conservation (SAC) and Special Protection Areas (SPA). These regulations were subsequently amended in 2019 to make them operable from 1 January 2021 despite the UK's withdrawal from the EU¹².

The Wildlife and Countryside Act 1981¹³ (as amended, primarily by the Countryside and Rights of Way (CRoW) Act 2000¹⁴) provides protection to Sites of Special Scientific Interest (SSSI) to ensure that developments are not likely to cause damage.

The Environment Act (Wales) 2016¹⁵, and Planning Policy Wales (PPW) provides further protection to designated ecological sites, including Ancient Woodland and local designations (e.g. Sites of Importance for Nature Conservation (SINCs)).

2.3 Policy

2.3.1 National Planning Policy

The Planning Policy Wales (PPW)¹⁶ document sets out the Welsh Government's land use planning policies for development across Wales.

The document states the following in relation to air quality and planning:

"6.1.32 When considering a scheme of enabling development, planning permission should be granted only where all of the following can be applied:

¹¹ The Conservation of Habitats and Species Regulations 2017 Statutory Instrument 490.

¹² The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.

¹³ Wildlife and Countryside Act 1981, 1981 chapter 69.

¹⁴ Countryside and Rights of Way Act 2000, 2000 chapter 37.

¹⁵ Environment (Wales) Act 2016, Acts of the National Assembly for Wales, 2016 anaw 3.

¹⁶ Welsh Government, Planning Policy Wales, Edition 12, February 2024.



[...] the enabling development does not give rise to significant risks, for example residential development in the floodplain or significantly impact on air quality or soundscape.”

Furthermore, in relation to addressing air quality in the planning system:

“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.*

6.7.5 *In taking forward these broad objectives the key planning policy principle is to consider the effects which proposed developments may have on air or soundscape quality and the effects which existing air or soundscape quality may have on proposed developments. Air Quality and soundscape influence choice of location and distribution of development and it will be important to consider the relationship of proposed development to existing development and its surrounding area and its potential to exacerbate or create poor air quality or inappropriate soundscapes. The agent of change principle says that a business or person responsible for introducing a change is responsible for managing that change. In practice, for example, this means a developer would have to ensure that solutions to address air quality or noise from nearby pre-existing infrastructure, businesses or venues can be found and implemented as part of ensuring development is acceptable.”*

PPW is supported by Future Wales: The National Plan 2040¹⁷ which is the national development framework for Wales. Air quality is a key theme throughout the framework.

2.3.2 Local Planning Policy

RCTCBC's current Local Development Plan (LDP)¹⁸ was adopted in 2011 and covers the period 2006 – 2021.

It contains the following policy of relevance to air quality:

Policy AW 10 – Environmental Protection and Public Health

“Development proposals will not be permitted where they would cause or result in a risk of unacceptable harm to health and / or local amenity because of:-

1. *Air pollution;*
[...]
9. *Or any other identified risk to the environment, local amenity and public health or safety*

unless it can be demonstrated that measures can be taken to overcome any significant adverse risk to public health, the environment and / or impact upon local amenity.”

RCTCBC have commenced the preparation of a revised LDP.

¹⁷ Welsh Government, Future Wales: The National Plan 2040, February 2021.

¹⁸ Rhondda Cynon Taf County Borough Council, Rhondda Cynon Taf Local Development Plan up to 2021, Adopted March 2011.



2.4 Guidance

This assessment has been informed by the principles contained within the guidance documents below.

- Department for Environment, Food and Rural Affairs (Defra) in partnership with the Welsh Government: Local Air Quality Management Technical Guidance (TG22) (LAQM.TG22)¹⁹;
- Environmental Policy Implementation Community (EPIC) (formerly EPUK) and the Institute of Air Quality Management (IAQM): Land-Use Planning & Development Control: Planning for Air Quality²⁰ ('EPIC & IAQM guidance');
- IAQM: Guidance on the Assessment of Dust from Demolition and Construction²¹ ('IAQM Dust guidance'); and
- IAQM: A Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites²² ('IAQM Nature guidance').

¹⁹ Local Air Quality Management Technical Guidance (TG22), Published by Defra in partnership with the Scottish Government, Welsh Government and Department of Agriculture, Environment and Rural Affairs Northern Ireland. May 2025.

²⁰ EPIC (formerly EPUK) and IAQM, Land-Use Planning and Development Control: Planning for Air Quality, v1.2 2017.

²¹ IAQM, Guidance on the Assessment of Dust from Demolition and Construction, v2.2 January 2024.

²² IAQM, A Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites, v1.1 2020.



3.0 Assessment Methodology

3.1 Construction Phase

The construction dust assessment has been undertaken in accordance with the IAQM Dust guidance. The assessment of risk is determined by considering the risk of dust effects arising from four activities in the absence of mitigation:

- Demolition;
- Earthworks;
- Construction; and
- Trackout.

The assessment methodology considers three separate dust impacts with account being taken of the sensitivity of the area that may experience these effects:

- Annoyance due to dust soiling;
- The risk of health effects due to an increase in exposure to PM₁₀; and
- Harm to ecological receptors.

The first stage of the assessment involves a screening review to determine if there are sensitive receptors within threshold distances of the Site activities associated with the construction phase of the scheme. A detailed assessment is required where a:

- Human receptor is located within 250m of the Site, and/or within 50m of routes used by construction vehicles (referred to as 'identified trackout routes'), up to 250m from the Site entrance(s); and/or
- Ecological receptor is located within 50m of the Site, and/or within 50m of the identified trackout routes, up to 250m from the Site entrance(s).

The dust emission class (or magnitude) for each activity is determined on the basis of the guidance, indicative thresholds and professional judgement. The risk of dust effects arising is based upon the relationship between the dust emission magnitude and the sensitivity of the area. The risk of impact is then used to determine the appropriate mitigation requirements, whereby through effective application, residual effects are considered to be 'not significant'.

Given the short-term nature of the construction phase and the low volume of vehicle movements that will likely arise when compared to the operational phase, there is not considered to be any potential for significant air quality effects from construction-generated road traffic emissions. Such potential effects have therefore been scoped out from requiring assessment based on their assumed insignificant impact, which is a standard approach for a scheme of this nature and scale.

3.2 Operational Phase

3.2.1 Road Traffic Emissions Screening

3.2.1.1 Human Receptors

The assessment of air quality effects in relation to the development's operational phase has been undertaken in accordance with EPIC & IAQM guidance.

The EPIC & IAQM guidance provides a series of indicative screening criteria where, if exceeded, further assessment may be required. If the Proposed Development is found not to



exceed any of the relevant indicative criteria presented, then no further assessment is required, and effects are concluded to be 'insignificant'.

The indicative screening criteria relevant for this assessment (for locations outside of AQMAs) are as follows:

- A change of light-duty vehicles (LDV) flows of more than 500 annual average daily traffic (AADT); and/or
- A change of heavy-duty vehicles (HDV) flows of more than 100 AADT.

The EPIC & IAQM guidance provides the indicative screening criteria within Table 6.2 of the guidance, however it also states:

"6.16 Where an air quality assessment is identified as being required, then this may take the form of either a Simple Assessment or Detailed Assessment [...] In other words, exceeding a screening criterion in Table 6.2 does not automatically lead to the requirement for a Detailed Assessment. The principle underlying this guidance is that any assessment should provide enough evidence that will lead to a sound conclusion on the presence, or otherwise, of a significant effect on local air quality. A Simple Assessment will be appropriate, if it can provide this evidence."

On this basis, even with an exceedance of the indicative screening criteria, it may be possible to screen out the need for a detailed assessment with appropriate evidence and depending on local sensitivities and factors.

Traffic data used for the purposes of the screening assessment has been provided by Pell Frischmann – the appointed transport consultant.

3.2.1.2 Ecological Receptors

The assessment of potential air quality effects in relation to the operation of the Proposed Development on ecological receptors has been undertaken in accordance with the IAQM Nature guidance.

This initially comprises a screening assessment irrespective of current baseline rates to indicate whether:

- Any sensitive qualifying features are located within 200m of a road link projected to experience a change in vehicle movements; and
- The Proposed Development (alone and/or in-combination with other projects and plans) is likely to generate:
 - >1,000 total AADT; and/or
 - >200 HDV AADT.

If the above criteria are not met, the ecological designations screen out of the assessment, and impacts are likely to be imperceptible, whereby resultant effects can be classed as 'insignificant'.

Whilst assessing impacts on internationally designated ecological sites (e.g. SAC, SPA), screening is undertaken in-combination with other projects and plans, following relevant legislation (Section 2.2). However, whilst assessing impacts on national and/or local ecological designations, it is appropriate to assess developmental trips in isolation (i.e. project alone). This is reflective of the differing levels of protection afforded to the sites.

3.2.2 Site Suitability

To determine the overall significance with respect to the suitability of the Site for future occupants and likely exposure to pollutant concentrations, the EPIC & IAQM guidance states:



“Where the air quality is such that an air quality objective at the building façade is not met, the effect on residents or occupants will be judged as significant, unless provision is made to reduce their exposure by some means.”

A qualitative site suitability assessment utilising publicly available datasets has been undertaken to inform the above and determine whether further consideration is required or whether effects can be considered ‘not significant’ following the EPIC & IAQM guidance.



4.0 Baseline Environment

4.1 Baseline Air Quality

Pollutant concentrations monitored during 2020 and 2021 (i.e. affected by the COVID-19 pandemic) are expected to be atypical and have therefore not been considered for the determination of baseline conditions.

4.1.1 LAQM Review and Assessment

RCTCBC, in fulfilment of statutory requirements, has conducted an on-going exercise to review and assess air quality within their administrative area.

The most recently published 2025 Air Quality Progress Report²³ (APR) has been reviewed.

In June 2025, RCTCBC revoked 10 of their declared AQMAs, and therefore presently has 6 AQMAs declared due to exceedances of the NO₂ AQALs at locations of relevant exposure – 5 AQMAs declared for the annual mean NO₂ AQAL, and 1 AQMA declared for both the annual and 1-hour mean NO₂ AQALs. These revocations are reflective of the continued improvements in local air quality across Rhondda Cynon Taf.

The 2025 APR states “*For more than a decade, a consistent improving trend in NO₂ throughout most parts of the County Borough reinforces the understanding that the vast majority of Rhondda Cynon Taf is expected to continue to show levels of NO₂ that are well within compliance to the relevant AQOs for NO₂. In 2024, levels of NO₂ continued to improve after a period of stability since 2020, continuing to build upon the considerable improvements in the levels of NO₂ observed between 2016 to 2019*” which supports the improving trend across the area.

Furthermore, there are no AQMAs within 5km of the Site.

4.1.2 Review of Air Quality Monitoring

4.1.2.1 Automatic Air Quality Monitoring

During 2024, RCTCBC undertook automatic air quality monitoring at four locations in their administrative area. The closest of these monitors is >8km from the Site. Furthermore, there are no monitors associated with the national Automatic Urban and Rural Network (AURN) in proximity to the Site. Given the separation distances, automatic monitoring has not been considered further in this assessment.

4.1.2.2 Passive Diffusion Tube Monitoring

Passive NO₂ diffusion tube monitoring is currently undertaken by RCTCBC at several locations across their administrative area, in fulfilment of statutory LAQM obligations.

The details and results of the monitoring locations closest to the Site are presented in Table 4-1 and Table 4-2 respectively, whilst their locations are illustrated in Figure 4-1. All monitoring data presented has been ratified by RCTCBC.

²³ Rhondda Cynon Taf County Borough Council, 2025 Air Quality Progress Report, September 2025.



Table 4-1: LAQM Diffusion Tube Monitoring Sites: Details

Site ID	Site Name	Site Type	NGR (m)		Approx. Distance to Site (km)
			X	Y	
37	Lakeside Court, A4119	Roadside	305442	181579	1.5
110	Cowbridge Road	Roadside	303533	181287	0.9
111	Bridgend Rd, Llanharan	Roadside	300259	183082	3.5
132	Cowbridge Rd, Talygarn	Roadside	302880	180517	1.9

Table 4-2: LAQM Diffusion Tube Monitoring Sites: Results

Site ID	Valid Data Capture 2024 (%)	Annual Mean NO ₂ Concentration (µg/m ³)				
		2020	2021	2022	2023	2024
37	91.7	22.7	27.8	28.0	26.5	23.0
110	91.7	18.6	23.2	23.2	23.4	18.0
111	66.7	26.9	32.4	27.3	27.3	26.6
132	91.7	19.6	24.4	22.8	22.4	18.7

As displayed in Table 4-2, annual mean NO₂ concentrations at the monitors presented have been below the annual mean AQAL (40µg/m³) across the period presented.

A downward trend in concentrations is generally noted across the period, when comparing 2022 with 2024 concentrations (i.e. post COVID). This is in accordance with the trends observed across Rhondda Cynon Taf and national datasets.

The empirical relationship given in LAQM.TG22 states that exceedance of the 1-hour mean AQAL for NO₂ is unlikely to occur where annual mean concentrations are <60µg/m³. This indicates that an exceedance of the 1-hour mean AQAL was unlikely to have occurred at the monitors presented for the period assessed.

4.1.3 Defra Mapped Background Concentrations

Defra maintains a nationwide model of existing and future background air quality concentrations at a 1km grid square resolution. The data sets include annual average concentration estimates for NO₂, PM₁₀ and PM_{2.5} using a reference year of 2021 (the year in which comparisons between modelled and monitored concentrations are made)²⁴.

The Defra mapped annual mean background concentrations for the base year adopted (2024 – the latest year of RCTCBC monitoring data) and earliest predicted opening year of the Proposed Development (2029) for the grid square containing the Site and nearby considered road links are presented in Table 4-3.

All mapped background concentrations are well below the respective annual mean AQALs.

Table 4-3: Defra Background Pollutant Concentrations

Grid Square (X, Y)	Year	Annual Mean Background Concentration (µg/m ³)		
		NO ₂	PM ₁₀	PM _{2.5}
303500, 182500	2024	7.6	11.2	6.8
	2029	6.2	10.8	6.4

²⁴ Defra, Background Mapping data for local authorities - 2021.



Grid Square (X, Y)	Year	Annual Mean Background Concentration ($\mu\text{g}/\text{m}^3$)		
		NO_2	PM_{10}	$\text{PM}_{2.5}$
304500, 182500	2024	7.8	11.4	6.9
	2029	6.2	11.0	6.5
305500, 182500	2024	7.5	11.5	6.8
	2029	6.0	11.1	6.4
AQAL		40	40	20



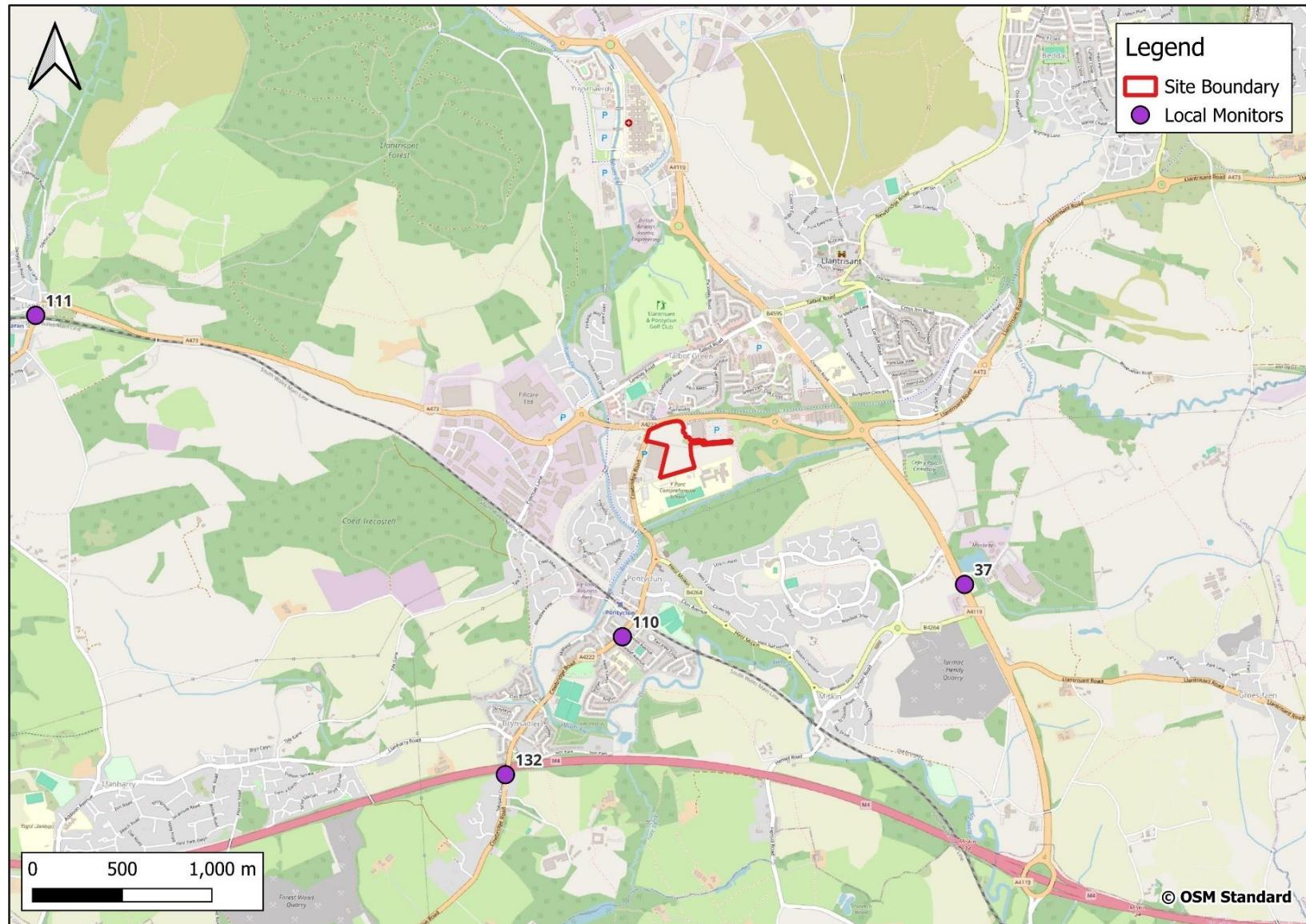


Figure 4-1: Local Monitoring Locations Relative to Site



5.0 Construction Dust Assessment

Where figures relating to area and volume of the Site, approximate number of construction vehicles or distances to receptors are given, these relate to thresholds as defined in the IAQM Dust guidance to guide the assessor to define the dust emissions magnitude and sensitivity of the area.

5.1 Assessment Screening

As shown in Figure 5-1, there are human receptors within 250m of the Site, and SINCs within 50m of the Site and identified trackout routes up to 250m from the Site access. Therefore, an assessment of construction dust on human and ecological receptors is required.

5.2 Potential Dust Emission Magnitude

5.2.1 Demolition

The Site comprises of open space with no existing buildings or structures that require demolition. Demolition activities have therefore been scoped out of the assessment.

5.2.2 Earthworks

The total Site area requiring earthworks is 18,000m² – 110,000m². Furthermore, it is anticipated that 5 – 10 heavy earth moving vehicles could be active at any one time.

The dust emission magnitude for earthworks is therefore considered to be ‘medium’.

5.2.3 Construction

The total building volume requiring construction is estimated to be >75,000m³, however given the typical phased nature of construction of such schemes, it is considered that the building volume under construction at any one time will be <75,000m³.

The dust emission magnitude for construction is therefore considered to be ‘medium’.

5.2.4 Trackout

Given the scale of the development, the maximum outward HDV movements in any day are predicted to be 20 – 50. The unpaved road length is likely to be 50m – 100m at any given time. Furthermore, the Site benefits from an existing tarmacked access road onto Cowbridge Road.

The dust emission magnitude for trackout is therefore considered to be ‘medium’.

5.2.5 Summary

A summary of the dust emission magnitude for the assessed activities is detailed in Table 5-1.

Table 5-1: Potential Dust Emission Magnitude

Activity	Dust Emission Magnitude
Earthworks	Medium
Construction	Medium
Trackout	Medium



5.3 Sensitivity of the Area

5.3.1 Dust Soiling Impacts

The Y Pant Comprehensive School is adjacent to the southern Site boundary. Given the number of students at the school, it is considered that >100 high sensitivity receptors are located within 20m of the Site.

In addition, there are 10 – 100 high sensitivity receptors (a mix of residential properties and a car dealership) located within 20m of the identified trackout routes up to 250m from the Site access.

The sensitivity of the area with respect to dust soiling effects on people and property in relation to earthworks, construction and trackout is therefore 'high'.

5.3.2 Human Health Impacts

The 2024 mapped background PM₁₀ concentration for the grid square containing the relevant human receptors is estimated to be 11.2µg/m³ (i.e. falls into the <24µg/m³ class) (see Table 4-3).

Based on the above figures regarding the number and sensitivity receptors within 20m of the Site boundary and trackout routes. The sensitivity of the area with respect to human health impacts in relation to earthworks, and construction is therefore 'medium' and 'low' for trackout.

5.3.3 Ecological Impacts

There are SINCs within 20m of the Site and identified trackout routes. SINCs are classified as low sensitivity receptors in accordance with IAQM Dust guidance.

The sensitivity of the area with respect to ecological impacts in relation to earthworks, construction and trackout is therefore 'low'.

5.3.4 Summary

A summary of the sensitivity of the surrounding area is detailed in Table 5-2, whilst the Site locale is displayed in Figure 5-1.

Table 5-2: Sensitivity of the Area

Potential Impact	Sensitivity of Surrounding Area		
	Earthworks	Construction	Trackout
Dust Soiling	High	High	High
Human Health	Medium	Medium	Low
Ecological	Low	Low	Low

5.4 Risk of Impacts (Unmitigated)

The outcome of the assessment of the potential 'dust emission magnitude', and the 'sensitivity of the area' are combined in Table 5-3 below to determine the risk of impact which is used to inform the selection of appropriate mitigation.



Table 5-3: Risk of Dust Impacts (Unmitigated)

Potential Impact	Earthworks	Construction	Trackout
Dust Soiling	Medium Risk	Medium Risk	Medium Risk
Human Health	Medium Risk	Medium Risk	Low Risk
Ecological	Low Risk	Low Risk	Low Risk

Following the construction dust assessment, the Site is found to be at worst 'medium risk' in relation to dust soiling effects on people and property and human health impacts, and 'low risk' in relation to ecological impacts (Table 5-3). Potential dust effects during the construction phase are considered to be temporary in nature and may only arise at particular times (i.e. certain activities and/or meteorological conditions).

Commensurate with the above designation of dust risk, mitigation measures, as identified by IAQM Dust guidance are required to ensure that any potential impacts arising from the construction phase of the Proposed Development are reduced and, where possible, completely removed. In accordance with IAQM Dust guidance, providing effective mitigation measures are implemented, such as those outlined in Section 7.1, residual construction dust effects are considered to be 'not significant'.



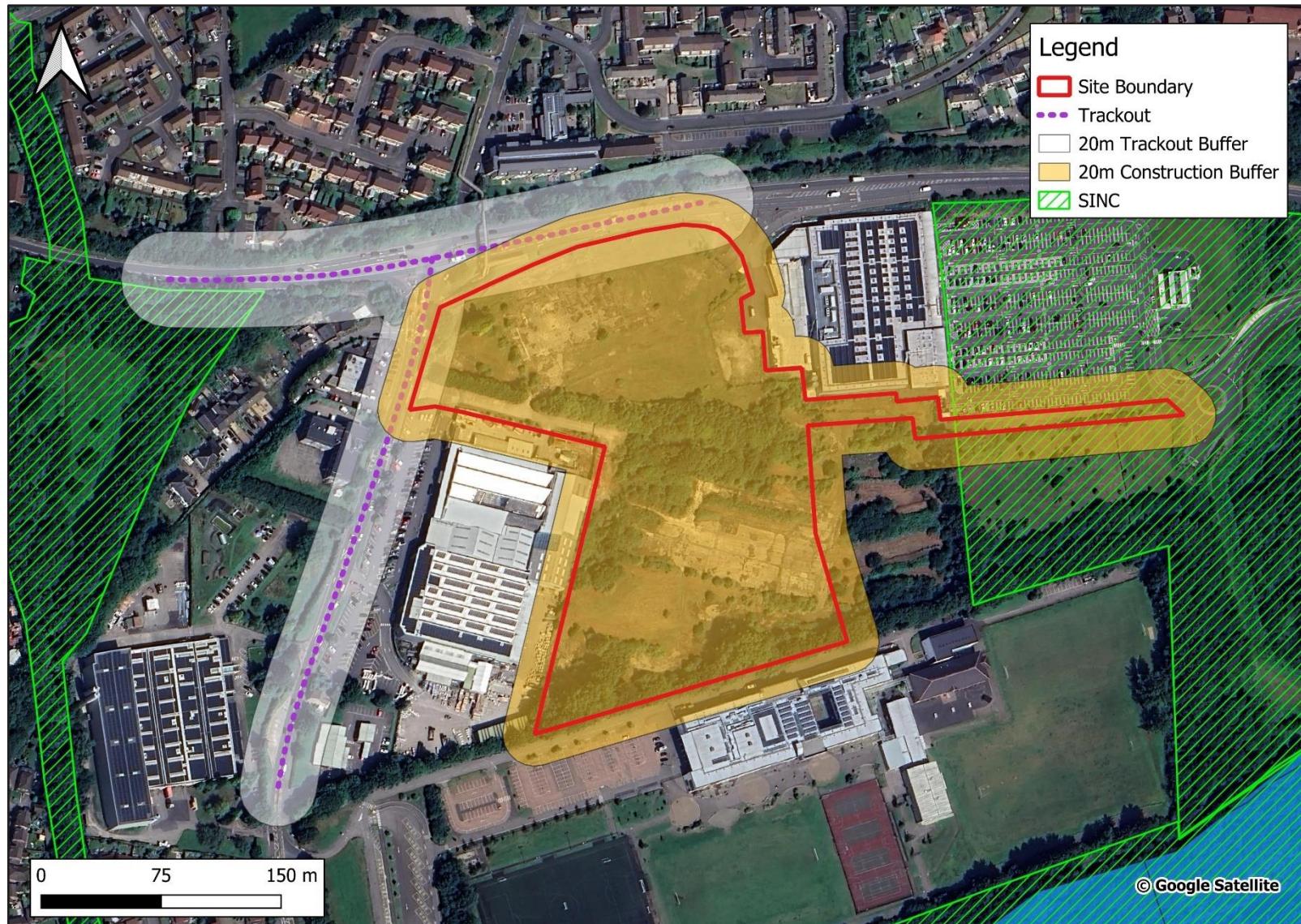


Figure 5-1: Construction Dust Assessment Buffers



6.0 Operational Phase Assessment

6.1 Road Traffic Screening Assessment

6.1.1 Human Receptors

Table 6-1 details the maximum road traffic flows generated by the Proposed Development distributed onto the local road network, as provided by Pell Frischmann.

The traffic flows have been compared to the relevant EPIC & IAQM indicative screening criteria.

Table 6-1: Road Traffic Flows Generated on the Local Road Network

Detail	AADT	
	LDVs	HDVs
Site Access Road (maximum)	748	6
Cowbridge Road (north of Site access)	733	6
Cowbridge Road (south of Site access)	15	0
A473 (east of Cowbridge Road junction)	591	5
A473 (west of Cowbridge Road junction)	142	1
A4119 (north)	30	0
A4119 (south)	419	4
A473 (east of A4119)	142	1
EPIC & IAQM Screening Criteria	500	100

As presented in Table 6-1, in relation to HDVs, the maximum vehicle trips generated by the Proposed Development on the local road network are below the relevant EPIC & IAQM indicative screening criteria.

In relation to LDVs, the Proposed Development is anticipated to generate a maximum of 748 LDV AADT on the Site access road. This distributes from the Site, with the majority of vehicle trips travelling north on Cowbridge Road (733 LDV AADT), then east on the A473 (591 LDV AADT). The trip generation is above the EPIC & IAQM indicative screening criteria (500 LDV AADT) on these road links, however, is below the indicative screening criteria on all other road links. The LDV distribution is displayed in Figure 6-1.

Based on local factors and sensitivities, a detailed assessment has been screened out, for the following reasons:

- There are no AQMAs along the affected road links.
- The local air quality monitors near to the Site have recorded annual mean NO₂ concentrations 'well below' (<75%) the annual mean AQAL in 2022-2024 (i.e. the recent period not impacted by the COVID-19 pandemic), as presented in Table 4-2. These concentrations are likely to be representative of roadside receptor locations near to the Site. As such, it is considered highly unlikely that the additional development-generated trips would result in an exceedance of the AQALs – as modelled annual mean concentrations are likely to be <75% of the AQALs with the Proposed Development in place.



- The Defra mapped annual mean background concentrations (2024 and 2029 – see Table 4-3) for the grid squares which cover the considered road links are ‘well below’ the relevant AQALs. This provides further confidence that an exceedance of the AQALs is highly unlikely.
- At the earliest, the Proposed Development is likely to be completed and operational in 2029, by which time further improvements to local air quality are anticipated in line with local and national trends.
- The road links most impacted by development-generated trips, i.e. a small section of Cowbridge Road (north of the Site access) and the A473 (east) corridor, are not considered particularly sensitive in terms of receptors, with mainly commercial premises located at the roadside. Further, according to the EPIC & IAQM guidance, a change in pollutant concentrations must be $>5\%$ of the relevant AQALs (i.e. $\geq 2\mu\text{g}/\text{m}^3$) to be considered greater than a ‘negligible’ impact when considering the low baseline concentrations referred to above. Given the relatively low number of additional vehicle trips (i.e. only slightly above the screening criteria) this level of change is considered unlikely.

Given this, the operational effects on local air quality arising from road traffic emissions associated with the Proposed Development are considered ‘insignificant’.

6.1.2 Ecological Receptors

The maximum trip generation associated with the Proposed Development is presented in Table 6-1. Only Ancient Woodlands and SINCs are located within 200m of the road links near to the Site (see Figure 6-2) and therefore the screening exercise has considered ‘project alone’ vehicle trips.

In summary, a total of 754 AADT (all vehicles) is predicted, which includes 6 HDV AADT. These figures are below the ‘project alone’ screening criteria (see Section 3.2.1.2).

Given this and in accordance with the IAQM Nature guidance, the operational effects on ecological receptors arising from road traffic emissions associated with the Proposed Development alone can be considered ‘insignificant’.

6.2 Site Suitability Assessment

With reference to the information discussed in Sections 4.1 and 6.1.1, the following points are noted in relation to Site suitability:

- There are no AQMAs within 5km of the Site. The area surrounding the Site is not considered to be a particular concern for air quality.
- In June 2025, RCTCBC revoked 10 of their AQMAs. This is reflective of the improving air quality baseline across Rhondda Cynon Taf and Wales more generally.
- From review of recent results from nearby RCTCBC monitors (Table 4-2), annual mean NO_2 concentrations have been consistently below the AQAL and were ‘well below’ in 2022-2024.
- The Defra mapped background annual mean NO_2 , PM_{10} and $\text{PM}_{2.5}$ concentrations for the grid square containing the Site are well below the AQAL in 2024, with further improvements noted by 2029.

Given the above, in line with the EPIC & IAQM guidance, pollutant concentrations are predicted to be below the respective AQALs across the Site, and it is found to be suitable for its proposed purpose (i.e. residential use). Effects associated with likely exposure of future occupants are considered to be ‘not significant’.



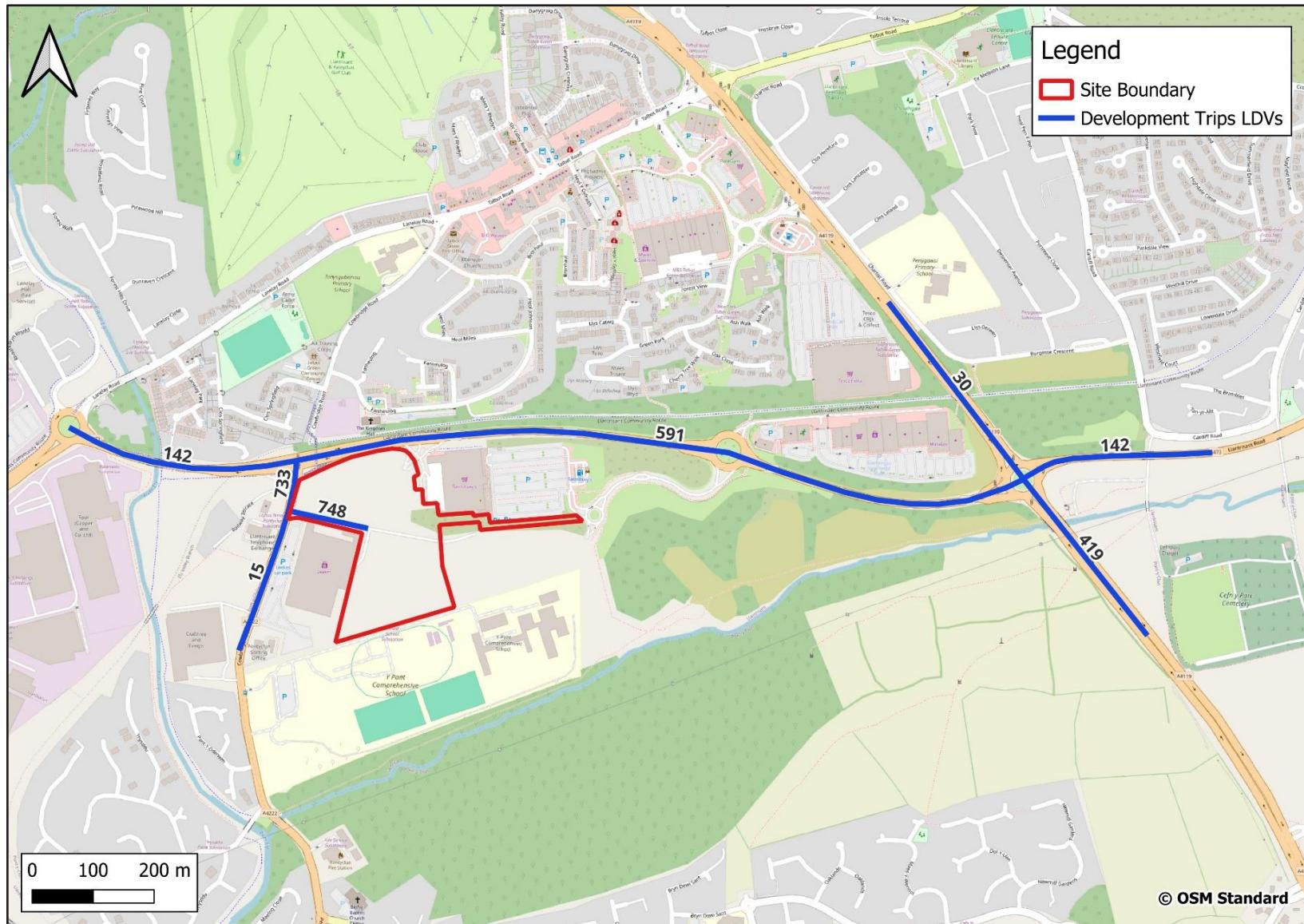


Figure 6-1: Development Generated Trips (LDVs) Distributed from Site



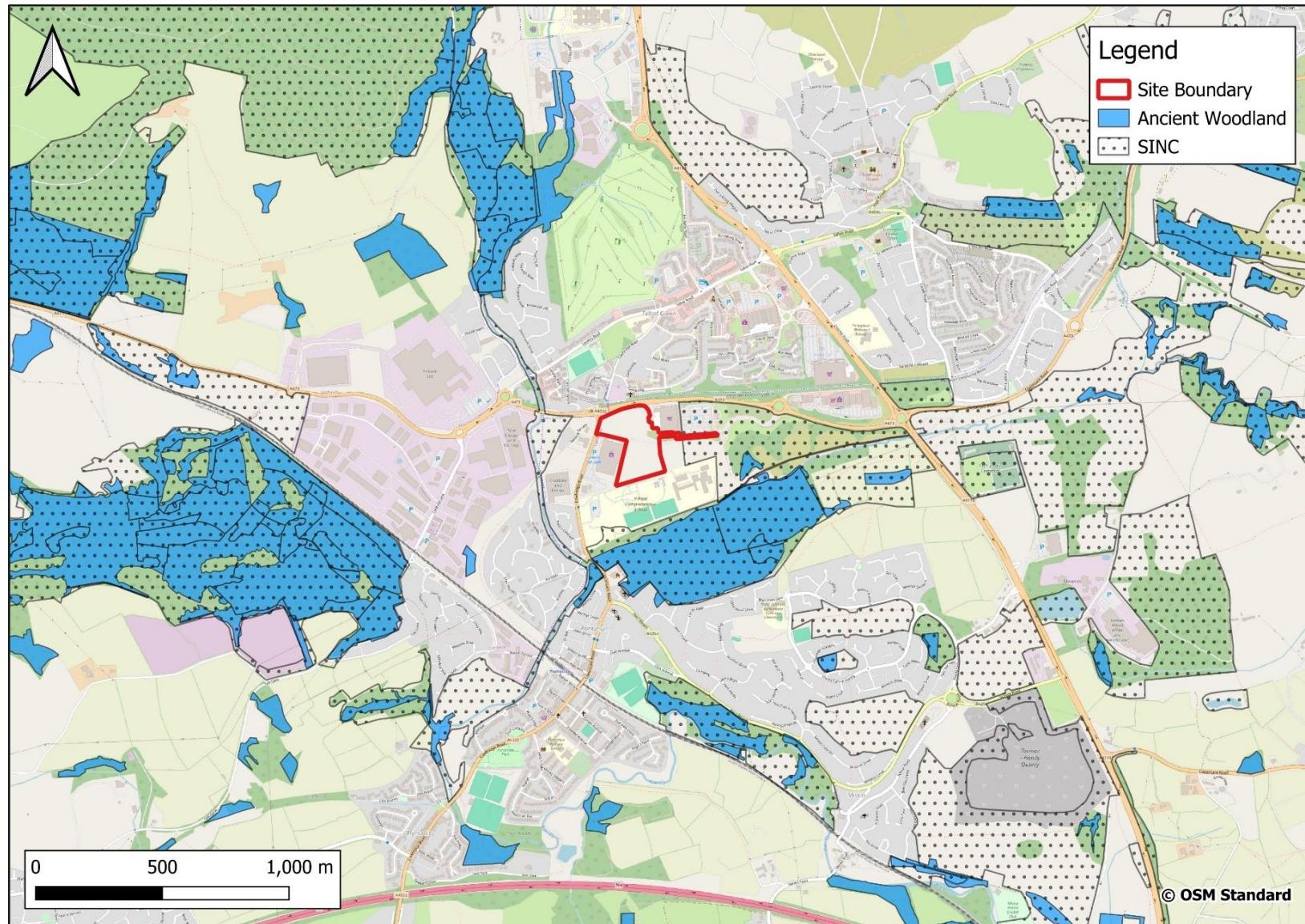


Figure 6-2: Ecological Receptors Relative to Site



7.0 Mitigation Measures

This section presents any proportionate mitigation measures required during the construction and operational phases of the Proposed Development.

7.1 Construction Phase

The IAQM Dust guidance outlines a number of site-specific mitigation measures based on the assessed site risk of dust impacts. The measures are grouped into those which are highly recommended and those which are desirable. With the effective application of the dust mitigation measures, as detailed in Table 7-1, residual effects are considered to be 'not significant'.

While the IAQM Dust guidance is primarily aimed at PM₁₀ and dust, the recommended measures will also have a direct impact on controlling associated PM_{2.5} emissions.

Table 7-1: Construction Dust Mitigation Measures

Site Application	Mitigation Measure
<i>Highly Recommended</i>	
Communications	<p>Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.</p> <p>Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.</p> <p>Display the head or regional office contact information.</p> <p>Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk, and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site.</p>
Operations	<p>Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.</p> <p>Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.</p> <p>Use enclosed chutes and conveyors and covered skips.</p> <p>Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.</p> <p>Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.</p>
Monitoring	<p>Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked.</p> <p>Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.</p>



Site Application	Mitigation Measure
	Agree dust deposition, dust flux, real time PM ₁₀ continuous monitoring and/or visual inspection locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.
Operating Vehicle / Machinery and Sustainable Travel	<p>Ensure all vehicles switch off engines when stationary - no idling vehicles.</p> <p>Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.</p>
Preparing and Maintaining the Site	<p>Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.</p> <p>Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.</p> <p>Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.</p> <p>Avoid site runoff of water or mud.</p> <p>Keep site fencing, barriers and scaffolding clean using wet methods.</p> <p>Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.</p> <p>Cover, seed or fence stockpiles to prevent wind whipping.</p>
Site Management	<p>Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.</p> <p>Make the complaints log available to the local authority when asked.</p> <p>Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the logbook.</p>
Construction	Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
Trackout	<p>Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.</p> <p>Avoid dry sweeping of large areas.</p> <p>Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.</p> <p>Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.</p> <p>Record all inspections of haul routes and any subsequent action in a site log book.</p> <p>Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.</p> <p>Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).</p>



Site Application	Mitigation Measure
	Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.
	Access gates to be located at least 10m from receptors where possible.
Waste Management	Avoid bonfires and burning of waste materials.
Desirable	
Construction	Avoid scabbling (roughening of concrete surfaces) if possible.
	Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
	For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.
Earthworks	Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
	Use Hessian, mulches or tackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable
	Only remove the cover in small areas during work and not all at once.
Monitoring	Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100m of site boundary, with cleaning to be provided if necessary.
Operating Vehicle / Machinery and Sustainable Travel	Impose and signpost a maximum-speed-limit of 15mph on surfaced and 10mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate).
	Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).

7.2 Operational Phase

In accordance with EPIC & IAQM guidance, road traffic impacts associated with the operation of the Site can be considered as having an 'insignificant' effect on local air quality.

Long-term scheme-specific mitigation measures are therefore not required to mitigate operational effects, however, will be considered and included as part of the detailed design in line with good practice. For example, appropriate Electric Vehicle (EV) charging infrastructure will be provided across the Site, and a Travel Plan is likely to support the Proposed Development.

Further, in respect of heat and energy provision, the Proposed Development will employ non-combustion emission sources (e.g. air or ground source heat pumps) in the first instance, however this will be confirmed during detailed design.



8.0 Conclusions

SLR has undertaken an air quality assessment to support an “*Outline application for the erection of up to 180 dwellings with all associated open space, landscaping, drainage, engineering and servicing*” on land to the east of the A4222 Cowbridge Road and south of the A473, Talbot Green, Wales.

8.1 Construction Phase

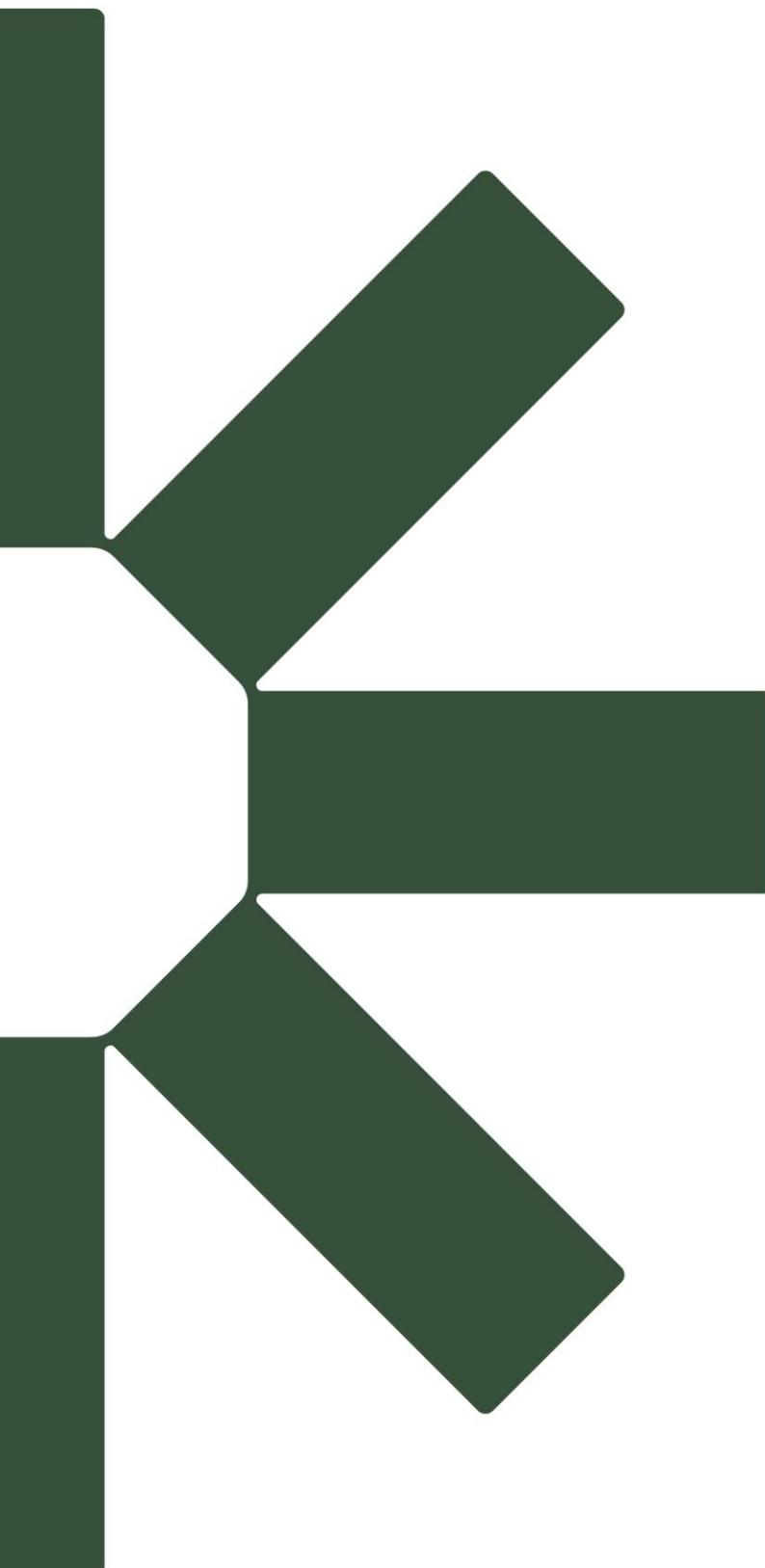
A qualitative assessment of the potential dust impacts during the construction of the Proposed Development has been undertaken following IAQM Dust guidance. Providing effective mitigation measures are implemented, such as those outlined in Table 7-1, residual effects from dust emissions arising during the construction phase are considered to be ‘not significant’.

8.2 Operational Phase

The operational effects on local air quality and ecological receptors arising from road traffic emissions associated with the Proposed Development can be considered ‘insignificant’.

The Site is considered suitable for its proposed residential use and effects associated with likely exposure of future occupants are considered to be ‘not significant’.





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