Amber REI Holdings Ltd

Gaerwen Industrial Estate, Gaerwen, Anglesey

Air Quality Screening Assessment

March 2019

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Document Control

Project:	Gaerwen Industrial Estate, Gaerwen, Anglesey
Client:	Amber REI Holdings Ltd
Job Number:	A109869
File Origin:	O:\Acoustics Air Quality and Noise\Active Projects

Document Checking:

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Issue	Date	Status
1	15th March 2019	First Issue

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Executive Summary

WYG have undertaken an Air Quality Screening Assessment for a proposed industrial development at Gaerwen Industrial Estate, Gaerwen, Anglesey, Wales.

The potential effects during the construction phase include fugitive dust emissions from site activities, such as construction and trackout. The impacts during the operational phase take into account of exhaust emissions from additional road traffic generated due to the proposed development.

The air quality background concentrations in the vicinity of the proposed development site are well below the Air Quality Objective (AQO) of 40µg/m^3 for NO_2 and PM_{10}.

The DMRB screening assessment concluded that during the operational phase, there will be no significant effects on local air quality from the additional development traffic on the local road network. Therefore, further detailed operational air quality assessment is not required.

Implementation of mitigation during the construction and operational phase of the development, and adherence to good practice measures will be implemented.

Based on the assessment undertaken and methodology within this assessment, it is concluded that the site is suitable for the proposed development and no further air quality assessment is required.

1. Introduction

Amber REI Holdings Ltd commissioned WYG Environment Planning Transport (WYG) to prepare an Air Quality Screening assessment to support the proposed development at Gaerwen Industrial Estate, Gaerwen, Anglesey, Wales.

1.1 Site Location and Context

Reference should be made to Figure 1 for a map of the proposed development site. The following assessment stages have been undertaken as part of this assessment:

- Baseline air quality evaluation;
- Assessment of potential air quality impacts during the construction phase; and,
- Assessment of potential air quality impacts during the operational phase.

The results of the assessment are detailed in the following sections of this report.

2. Baseline Conditions

2.1 Air Quality review and Assessment

This section provides a review of the existing air quality in the vicinity of the proposed development site in order to provide a benchmark against which to assess potential air quality impacts of the proposed development. Baseline air quality in the vicinity of the proposed development site has been defined from a number of sources, as described in the following sections.

Local Air Quality Management (LAQM)

As required under section 82 of the Environment Act 1995, the Isle of Anglesey County Council (IACC) is part of the North Wales Combined Authority. The North Wales Combined Authority has conducted an ongoing exercise to review and assess air quality within its area of jurisdiction, including IACC. The North Wales Combined Authority has no designated Air Quality Management Areas (AQMAs).

Air Quality Monitoring

Monitoring of air quality within IACC is undertaken through continuous and non-continuous monitoring methods. These have been reviewed in order to provide an indication of existing air quality in the area surrounding the proposed development site.

Continuous Monitoring

IACC operated a network of four PM_{10} monitoring locations in 2017. The closest automatic monitoring station is located approximately 6.1 km north-east from the site boundary. The most recently available automatic monitoring station results from within IACC are presented in Table 2.1 below.

Table 2.1 Particulate Matter Monitoring Locations

Site ID	Location	Site Type	Distance to Nearest Road (m)	Inlet Height (m)	NO_2 Annual Mean Concentration 2017 (µg/m^3)
CM1	Llynfaes	Rural	10.0	1.5	13.2
CM2	Brynteg	Rural	5.0	4.0	11.0
CM3	Felin Cafnan, Cemlyn	Rural	233.0	1.5	13.3
CM4	IVC Penhesgyn	Rural	200.0	1.5	8.1

Table 2.1 above illustrates that no monitoring locations during 2017 monitored exceedances of the relevant annual AQO for PM_{10} (40 µg/m^3).

Non-Continuous Monitoring

IACC operated a network of 35 NO_2 diffusion tubes in 2017. The closest diffusion tube is located approximately 2.2 km north-east-east from the site boundary.

The closest NO_2 diffusion tube monitoring results from within IACC are presented in Table 2.2 below.

Table 2.2 Nitrogen Dioxide Monitoring Locations

Site ID	Location	Site Type	Distance to Nearest Road (m)	Inlet Height (m)	NO_2 Annual Mean Concentration 2017 (µg/m^3)
A11	Ffordd Caergybi SSSI	Roadside	1.0	1.5	12.4
A12	Star	Roadside	0.5	1.5	12.3
A13	Star	Roadside	1.5	2.0	14.7
A14	Star	Roadside	1.5	2.0	11.7

Table 2.1 above illustrates that no diffusion tube locations monitored exceedances of the relevant annual AQO for NO_2 (40 µg/m^3) during 2017.

2.2 Background Concentrations

The use of background concentrations within the modelling process ensures that pollutant sources other than traffic are represented appropriately. Background sources of pollutants include industrial, domestic and rail emissions within the vicinity of the study site. Several sources have been used to obtain representative background levels as discussed below.

The background concentrations used within the assessment have been determined with reference to the IAQM Guidance and TG (16).

The IAQM Guidance states:

> "*A matter of judgement should take into account the background and future background air quality and whether it is likely to approach or exceed the value of the AQO.*"

Additionally, TG (16) states:

> "*Typically, only the process contributions from local sources are represented within and output by the dispersion model. In these circumstances, it is necessary to add an appropriate background concentration(s) to the modelled source contributions to derive the total pollutant concentrations.*"

Defra Published Background Concentrations for 2024

Background concentrations from the UK National Air Quality Information Archive database based on the National Grid Co-ordinates of 1 x 1 km grid squares nearest to the development site are shown in Table 2.3 below. In November 2017, Defra issued revised 2015 based background maps for nitrogen oxide (NO_X), NO_2, PM_{10} and $PM_{2.5}$ which incorporate updates to the input data used for modelling. 2024 background maps have been utilised. The mapped background concentrations used in the assessment are summarised in Table 2.3.

Table 2.3 Published Background Air Quality Levels (µg/m³)

Receptor Location	2024			
	NO_2	NO_x	PM_{10}	$PM_{2.5}$
R1	4.27	5.41	9.78	6.17
R2	4.27	5.41	9.78	6.17
R3	4.27	5.41	9.78	6.17
R4	4.76	6.08	9.31	6.08
R5	4.24	5.39	10.78	7.43
R6	4.24	5.39	10.78	7.43
R7	4.24	5.39	10.78	7.43
R8	4.24	5.39	10.78	7.43
R9	3.42	4.32	8.52	5.49
R10	4.24	5.39	10.78	7.43
R11	4.76	6.08	9.31	6.08

Background Defra background concentrations have been used to determine the background at each receptor location as the local authority monitoring is not considered representative of the semi-rural locality of the site. Therefore, the only available data for the purposes of this assessment are those published by Defra.

3. Construction Phase

The main emissions during construction are likely to be dust and particulate matter generated during earth moving (particularly during dry months) or from construction materials. The main potential effects of dust and particulate matter are:

- Visual - dust plume, reduced visibility, coating and soiling of surfaces leading to annoyance, loss of amenity, the need to clean surfaces;
- Physical and/or chemical contamination and corrosion of artefacts;
- Coating of vegetation and soil contamination; and,
- Health effects due to inhalation e.g. asthma or irritation of the eyes.

A number of other factors such as the amount of precipitation and other meteorological conditions will also greatly influence the amount of particulate matter generated.

Construction activities can give rise to short-term elevated dust/PM_{10} concentrations in neighbouring areas. This may arise from vehicle movements, soiling of the public highway or windblown stockpiles.

3.1 Particulate Matter (PM_{10})

The UK Air Quality Standards seek to control the health implications of respirable PM_{10}. However, the majority of particles released from construction will be greater than this in size.

Construction works on site have the potential to elevate localised PM_{10} concentrations in the area. On this basis, mitigation measures should still be taken to minimise these emissions as part of good site practice.

3.2 Dust

Particles greater than 10µm are likely to settle out relatively quickly and may cause annoyance due to their soiling capability. There are no formal standards or criteria for nuisance caused by deposited particles, however, a deposition rate of 200mg/m^2/day is often presented as a threshold for serious nuisance though this is usually only applied to long term exposure as people are generally more tolerant of dust for a short or defined period. Significant nuisance is likely when the dust coverage of surfaces is visible in contrast with adjacent clean areas, especially when it happens regularly. Severe dust nuisance occurs when the dust is perceptible without a clean reference surface.

Construction activities have the potential to suspend dust, which could result in annoyance of residents surrounding the site. Measures will be taken to minimise the emissions of dust as part of good site practice. Recommended mitigation measures proportionate to the risk associated with the development and based on best practice guidance are discussed in the following sections.

3.3 Methodology

The construction phase assessment utilises the IAQM Guidance on the Assessment of Dust from Demolition and Construction document published in February 2014.

Two construction processes are considered; these are construction and trackout. For each of these phases, the significance of the potential dust impacts is derived following the determination of a dust emission magnitude and the distance of activities to the nearest sensitive receptor, therefore assessing worst case impacts. A full explanation of the methodology is contained in Appendix A.

3.4 Assessment Results

Based on the methodology detailed in Appendix A, the scale of the anticipated works has determined the potential dust emission magnitude for each process, as presented in the Table 1.1 below.

Table 3.1 Dust Emission Magnitude

Construction Process	Dust Emission Magnitude
Demolition	Large
Earthworks	Large
Construction	Large
Trackout	Large

The sensitivity of the surrounding area to each construction process has been determined following stage 2B of the IAQM guidance. The assessment has determined the area sensitivities as shown in the Table 3.2.

Table 3.2 Sensitivity of the Area

Source	Area Sensitivity		
	Dust Soiling	Health Effects of PM_{10}	Ecological
Demolition	Low	Low	N/A
Earthworks	Low	Low	N/A
Construction	Low	Low	N/A
Trackout	Low	Low	N/A

The dust emission magnitude determined in Table 3.1 has been combined with the sensitivity of the area determined in Table 3.2, to determine the risk of impacts prior to the implementation of appropriate mitigation measures. The potential impact significance of dust emissions associated with the construction phase, without mitigation, is presented below in Table 3.3.

Table 3.3 Impact Significance of Construction Activities without Mitigation

Source	Summary Risk of Impacts Prior to Mitigation		
	Dust Soiling	Health Effects of PM_{10}	Ecological
Demolition	Medium	Medium	N/A
Earthworks	Low	Low	N/A

Source	Summary Risk of Impacts Prior to Mitigation		
	Dust Soiling	Health Effects of PM_{10}	Ecological
Construction	Low	Low	N/A
Trackout	Low	Low	N/A

4. Operational Phase DMRB Assessment

4.1 DMRB Assessment

An assessment of operational phase traffic flows has been undertaken to assess the potential impact of the proposed development with regards to increases in traffic flows along the local road network. Principal pollutants of concern considered within this assessment are nitrogen dioxide (NO_2) and particulate matter (PM_{10}).

The DMRB Calculation Sheet V1.03c has been used to calculate pollutant concentrations. Assessment receptor locations have been selected at existing property facades at locations where higher than average pollution concentrations are likely to be experienced. Selecting receptors at such locations ensures a 'worst case scenario' prediction of pollutant concentrations. An assessment of the impact of existing air quality on proposed receptors has also been included.

4.2 Traffic Data

Traffic data has been sourced from the Transport Assessment completed for the development by WYG Transport Consultants.

The traffic data used in the assessment are shown in Table 4.1.

Table 4.1 Traffic Data

Link		Speed (km/h)	2019 Baseline		2024 Do Minimum		2024 Do Something	
			AADT	%HGV	AADT	%HGV	AADT	%HGV
1	A5 West of Lon Groes	48	6,077	21	6,288	21	7,154	19
2	A5 between Lon Groes and Lon Groes	48	4,837	21	5,005	21	5,054	22
3	A5 between Lon Groes and Chapel Street	48	4,843	21	5,011	21	5,344	20
4	Lon Groes between A5 and Site Access	48	4,366	29	4,517	29	5,432	26
5	Site Access	32	6	0	7	0	1,489	8
6	Lon Groes between Site Access and Lon Groes	48	1,523	21	1,576	21	2,144	16
7	Lon Groes between A5 and Lon Groes	48	730	1	755	1	1,039	1
8	Lon Groes between Lon Groes and Chapel Street	48	1,763	21	1,824	21	2,108	19
9	Chapel Street south of Lon Groes	64	1,333	20	1,379	20	1,379	20
10	Chapel Street between Lon Groes and A5	48	1,708	20	1,767	20	2,051	17

4.3 Limitations of DMRB Assessment

The following limitations have been identified with the DRMB Assessment:

- The assessment has only considered the impact on the identified affected roads, namely those included in Table 4.1;
- Background concentrations have been used from UK National Air Quality Archive; and,
- The DRMB result outputs are unadjusted results.

4.4 Assessment Receptor Locations

Receptor locations have been identified to indicate the effects of the surrounding road network. The receptor locations are presented in Table 4.2 overleaf and reference should be made to Figure 1 for a visual representation.

Table 4.2 Assessment Receptor Locations

Receptor		Distance from Link (m)									
ID	Location	1	2	3	4	5	6	7	8	9	10
R1	Gardd Irby, Pentre Berw	8.7	461.6	720.5	461.6	736.2	736.2	720.5	917.7	1458.7	1419.9
R2	Shalom, Pentre Berw	30.9	355.7	623.6	355.7	617.2	617.2	623.6	800.8	1344.3	1310.1
R3	2 Bron Heylog	9.6	94.1	363.8	94.1	386.9	386.9	363.8	557.5	1092.7	1051.9
R4	3 Hen Siop	277.6	8.0	46.4	227.6	285.5	285.5	46.4	354.4	824.9	758.9
R5	1 Bron Ceris	559.2	286.2	10.5	478.1	487.1	388.4	254.2	381.8	603.5	461.6
R6	Frondirion	953.3	680.2	9.4	838.0	838.8	694.6	641.6	505.7	547.8	105.9
R7	Wylfa, Chapel Street	965.8	708.5	279.2	768.1	768.0	589.7	574.7	269.5	279.3	10.1
R8	Groeslon Newydd, Gros	997.8	785.2	554.7	730.8	638.9	541.4	541.4	12.1	8.2	14.3
R9	1 Fron	1282.5	1127.8	988.5	976.6	651.0	815.2	815.2	443.9	8.8	443.9
R10	Erw Deg, Lon Groes	486.5	380.0	380.0	184.6	156.3	58.5	59.1	59.1	560.2	560.2
R11	Ysgol Esceifiog, Lon Groes	295.6	196.1	203.3	96.5	96.5	83.8	71.7	176.6	710.6	680.3

4.5 Ecological Receptors

Air quality impacts associated with the proposed development have the potential to impact on receptors of ecological sensitivity within the vicinity of the site. The Conservation of Habitats and Species Regulations (2017) require competent authorities to review planning applications and consents that have the potential to impact on European designated sites (e.g. Special Protection Areas).

A study was undertaken to identify any statutory designated sites of ecological or nature conservation importance within the extents of the dispersion modelling assessment. This was completed using the Multi-Agency Geographic Information for the Countryside (MAGIC) web-based interactive mapping service, which draws together information on key environmental schemes and designations. Following a search within a 1km radius of the site boundary, no ecologically sensitive receptor was identified.

4.6 DMRB Assessment Results

Nitrogen Dioxide

Table 4.3 presents a summary of the predicted change in NO_2 concentrations at relevant receptor locations, due to changes in traffic flow associated with the development, based on modelled 'do minimum' and 'do something' scenarios.

Table 4.3 Nitrogen Dioxide Assessment Results (µg/m³)

Receptor		Predicted Annual Mean NO_2 Concentration (µg/m³)			
		Baseline 2019	Do Minimum 2024	Do Something 2024	Development Contribution
R1	Gardd Irby, Pentre Berw	10.22	10.23	10.57	0.34
R2	Shalom, Pentre Berw	7.56	7.58	7.76	0.18
R3	2 Bron Heylog	11.20	11.22	11.62	0.40
R4	3 Hen Siop	11.40	11.42	11.71	0.29
R5	1 Bron Ceris	8.79	8.80	8.93	0.13
R6	Frondirion	9.05	8.93	9.07	0.14
R7	Wylfa, Chapel Street	5.67	5.67	5.72	0.05
R8	Groeslon Newydd, Gros	8.04	8.04	8.20	0.16
R9	1 Fron	4.53	4.53	4.53	<0.01
R10	Erw Deg, Lon Groes	5.23	5.05	5.37	0.32
R11	Ysgol Esceifiog, Lon Groes	5.69	5.69	5.89	0.20

All modelled existing receptors are predicted to be below the AQO for NO_2 in both the 'do minimum' and 'do something' scenarios.

As illustrated in Table 4.3, at nearby existing receptors, there is predicted to be an increase in the annual average exposure of NO_2, due to changes in traffic movement associated with the development is 0.40 µg/m³ at 2 Bron Heylog (R3).

The significance of the effects is shown in Table 4.4 below.

Table 4.4 Significance of Effects at Key Existing Receptors (NO_2)

NO_2 Significance Effects at Key Receptors					
Receptor	**Change Due to Development (DS-DM) (µg/m³)**	**Change (% of AQO)**	**% Change in Concentration Relative to AQO**	**% Annual Mean Concentration in Assessment Year**	**Significance**
R1	0.34	0.85	1%	≤75% of AQAL	Negligible
R2	0.18	0.45	0%	≤75% of AQAL	Negligible
R3	0.40	1.00	1%	≤75% of AQAL	Negligible
R4	0.29	0.73	1%	≤75% of AQAL	Negligible
R5	0.13	0.33	0%	≤75% of AQAL	Negligible
R6	0.14	0.35	0%	≤75% of AQAL	Negligible
R7	0.05	0.13	0%	≤75% of AQAL	Negligible
R8	0.16	0.40	0%	≤75% of AQAL	Negligible
R9	<0.01	0.00	0%	≤75% of AQAL	Negligible
R10	0.32	0.80	1%	≤75% of AQAL	Negligible
R11	0.20	0.50	1%	≤75% of AQAL	Negligible
*0% means a change of <0.5% as per explanatory note 2 of table 6.3 of the EPUK IAQM Guidance.					

Particulate Matter (PM_{10})

Table 4.5 presents a summary of the predicted change in annual mean PM_{10} concentrations at relevant receptor locations, due to changes in traffic flow associated with the development, based on modelled 'do minimum' and 'do something' scenarios.

Table 4.5 Particulate Matter Assessment Results (µg/m³)

Receptor		**Predicted Annual Mean PM_{10} Concentration (µg/m³)**			
		Baseline 2019	**Do Minimum 2024**	**Do Something 2024**	**Development Contribution**
R1	Gardd Irby, Pentre Berw	10.52	10.55	10.61	0.06
R2	Shalom, Pentre Berw	10.19	10.20	10.24	0.04
R3	2 Bron Heylog	10.65	10.67	10.75	0.08
R4	3 Hen Siop	10.15	10.18	10.22	0.04
R5	1 Bron Ceris	11.35	11.36	11.39	0.03
R6	Frondirion	11.38	11.38	11.41	0.03
R7	Wylfa, Chapel Street	10.96	10.97	10.98	0.01
R8	Groeslon Newydd, Gros	11.25	11.26	11.30	0.04
R9	1 Fron	8.65	8.65	8.65	<0.01
R10	Erw Deg, Lon Groes	10.91	10.89	10.94	0.05
R11	Ysgol Esceifiog, Lon Groes	9.42	9.43	9.46	0.03

All modelled existing receptors are predicted to be below the AQO for PM_{10} in both the 'do minimum' and 'do something' scenarios.

As illustrated in Table 4.5, at nearby existing receptors, there is predicted to be an increase in the annual average exposure of PM_{10}, due to changes in traffic movement associated with the development is 0.08

µg/m³ at 2 Bron Heylog (R3).

The significance of the effects are shown in Table 4.6 below.

Table 4.6 Significance of Effects at Key Existing Receptors (PM_{10})

PM_{10} Significance Effects at Key Receptors					
Receptor	**Change Due to Development (DS-DM) (µg/m³)**	**Change (% of AQO)**	**% Change in Concentration Relative to AQO**	**% Annual Mean Concentration in Assessment Year**	**Significance**
R1	0.06	0.15	0%	≤75% of AQAL	Negligible
R2	0.04	0.10	0%	≤75% of AQAL	Negligible
R3	0.08	0.20	0%	≤75% of AQAL	Negligible
R4	0.04	0.10	0%	≤75% of AQAL	Negligible
R5	0.03	0.08	0%	≤75% of AQAL	Negligible
R6	0.03	0.08	0%	≤75% of AQAL	Negligible
R7	0.01	0.03	0%	≤75% of AQAL	Negligible
R8	0.04	0.10	0%	≤75% of AQAL	Negligible
R9	<0.01	0.00	0%	≤75% of AQAL	Negligible
R10	0.05	0.13	0%	≤75% of AQAL	Negligible
R11	0.03	0.08	0%	≤75% of AQAL	Negligible
*0% means a change of <0.5% as per explanatory note 2 of table 6.3 of the EPUK IAQM Guidance.					

The DMRB assessment calculations have predicted that there will not be an exceedance of AQOs for Nitrogen Dioxide (NO_2) and PM_{10} at existing receptors, and therefore further mitigation will not be necessary.

5. Mitigation

5.1 Construction Phase

The dust risk categories have been determined in Section 3 for each of the four construction activities. The assessment has determined that the potential impact significance of dust emissions associated with the construction phase of the proposed development is 'medium risk' at the worst affected receptors.

Using the methodology described in Appendix A, site specific mitigation measures associated with the determined level of risk can be found in Section 8.2 of the IAQM Guidance on the Assessment of Dust from Demolition and Construction. The mitigation measures have been divided into general communications and dust management measures applicable to all sites, and measures applicable specifically to demolition, earthworks, construction and trackout. They are categorised into 'highly recommended' and 'desirable' measures.

The mitigation measures for the proposed development are detailed in Table 5.1 and Table 5.2 below:

Table 5.1 Highly Recommended Construction Phase Mitigation Measures

Communications
Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.
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.
Display the head or regional office contact information
Dust Management
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
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.
Make the complaints log available to the local authority when asked.
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 log book.
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
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.
Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
Fully enclose site or specific operations where there is a high potential for dust production and the site is actives for an extensive period
Avoid site runoff of water or mud.
Keep site fencing, barriers and scaffolding clean using wet methods.
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.
Cover, seed or fence stockpiles to prevent wind whipping.
Ensure all vehicles switch off engines when stationary - no idling vehicles.
Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.

Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.
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
Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
Use enclosed chutes and conveyors and covered skips
Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
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
Avoid bonfires and burning of waste materials.
Demolition
Ensure effective water suppression is used during demolition operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground.
Avoid explosive blasting, using appropriate manual or mechanical alternatives.
Bag and remove any biological debris or damp down such material before demolition.

Table 5.2 Desirable Construction Phase Mitigation Measures

Dust Management
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 window sills within 100m of site boundary, with cleaning to be provided if necessary.
Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on un-surfaced 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)
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.
Construction
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.
Avoid dry sweeping of large areas.
Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
Record all inspections of haul routes and any subsequent action in a site log book.
Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).

Following the implementation of the mitigation measures detailed in the tables above, the impact significance of the construction phase is not considered to be significant.

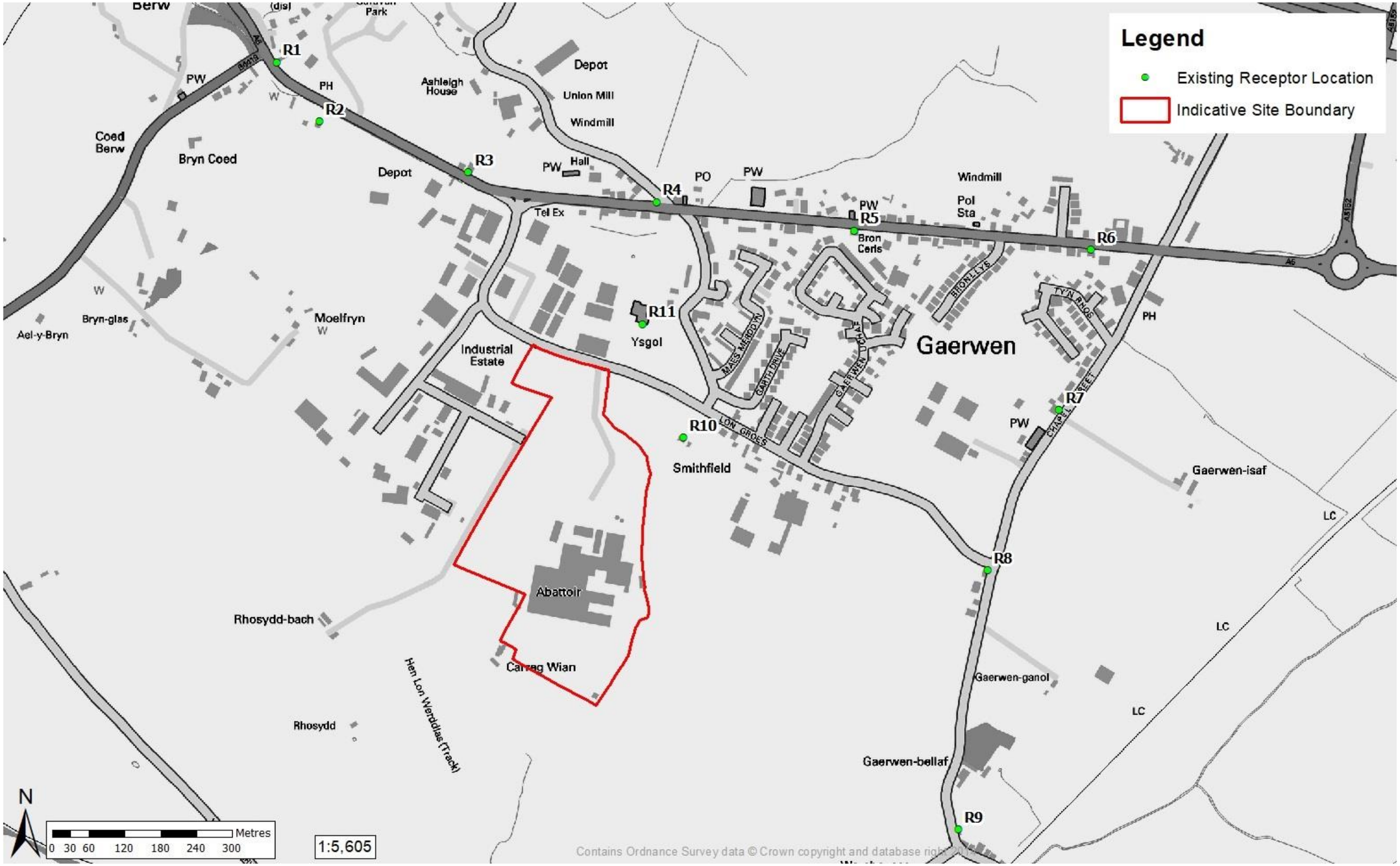
6. Conclusions

WYG have undertaken an Air Quality Screening Assessment for the proposed industrial development at Gaerwen Industrial Estate, Anglesey, Wales. This assessment has been undertaken in accordance with the methodology and parameters described within this report.

Prior to the implementation of appropriate mitigation measures, the potential impact significance of dust emissions associated with the construction phase of the proposed development has potential as 'medium' at some worst affected receptors without mitigation. However, appropriate site-specific mitigation measures have been recommended based on Section 8.2 of the IAQM Guidance on the Assessment of Dust from Demolition, Earthworks, Construction and Trackout. It is anticipated that with these appropriate mitigation measures in place, the risk of adverse effects due to emissions from the construction phase will not be significant.

Following a review of the baseline conditions and the DMRB Screening results, it is predicted that levels of either NO_2 or PM_{10} will not exceed their relevant annual Air Quality Objectives. The magnitude of the effects of changes in traffic flow as a result of the proposed development, with respect to NO_2 and PM_{10} exposure, is determined to be 'negligible'. Overall, it is considered that there are no valid air quality related impacts to warrant further detailed air quality assessment.

Figure 1 Site Location Plan



Appendix A – Construction Phase Methodology

The following information sets out the adopted approach to the construction phase impact assessment in accordance with the aforementioned IAQM guidance[1].

Step 1 – Screen the Requirement for a more Detailed Assessment

An assessment is required if there are sensitive receptors within 350m of the site boundary, within 50m of the route(s) used by construction vehicles on the surrounding road network, or within 500m from the site entrance. A detailed assessment is also required if there is an ecological receptor within 50m of the site boundary.

Step 2A – Define the Potential Dust Emission Magnitude

Construction

The dust emission magnitude for the construction phase has been determined based on the below criteria:

- *Large:* Total building volume >100 000m^3, on site concrete batching; sandblasting
- *Medium:* Total building volume 25 000m^3 – 100 000m^3, potentially dusty construction material (e.g. concrete), on site concrete batching; and,
- *Small:* Total building volume <25 000m^3, construction material with low potential for dust release (e.g. metal cladding or timber).

Trackout

The dust emission magnitude for trackout has been determined based on the below criteria:

- *Large:* >50 HGV (>3.5t) outward movements in any one day, potentially dusty surface material (e.g. high clay content), unpaved road length >100m;
- *Medium:* 10-50 HGV (>3.5t) outward movements in any one day, moderately dusty surface material (e.g. high clay content), unpaved road length 50m – 100m; and,
- *Small:* <10 HGV (>3.5t) outward movements in any one day, surface material with low potential for dust release, unpaved road length <50m.

Step 2B - Defining the Sensitivity of the Area

Sensitivities of People to Dust Soiling Effects

- *High:*
  - Users can reasonably expect a enjoyment of a high level of amenity;
  - The appearance, aesthetics or value of their property would be diminished by soiling; and the people or property would reasonably expect to be present continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land; and,
  - Indicative examples include dwellings, museums and other culturally important collections, medium and long term car parks and car showrooms.
- *Medium:*
  - Users can reasonably expect to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home;
  - The appearance, aesthetics or value of their property could be diminished by soiling;
  - The people or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land; and,
  - Indicative examples include parks and places of work.
- *Low:*
  - The enjoyment of amenity would not reasonably be expected;
  - Property would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling;
  - There is transient exposure, where the people or property would reasonably be expected to be present only for limited periods

[1] Institute of Air Quality Management 2014. *Guidance on the Assessment of dust from demolition and construction.*

of time as part of the normal pattern of use of the land; and,

- Indicative examples include playing fields, farmland (unless commercially-sensitive horticultural), footpaths, short term car parks and roads.

The sensitivity of the area should be derived for each of the four activities: demolition, construction, earthworks and trackout, using the following table:

Table A1– Sensitivity of the Area to Dust Soiling Effects on People and Property

Receptor Sensitivity	Number of Receptors	Distance from the Source (m)			
		<20	<50	<100	<350
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Note - The likely routes the construction traffic will use should also be included to enable the presence of trackout receptors to be included in the assessment. As a general guidance, without site-specific mitigation, trackout may occur along the public highway up to 500 m from large sites (as defined in step 2A), 200 m from medium sites and 50 m from small sites, as measured from the site exit.

Sensitivities of People to the Health Effects of PM_{10}

- *High:*
  - Locations where members of the public are exposed over a time period relevant to the air quality objective for PM_{10} (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day);
  - Indicative examples include residential properties. Hospitals, schools and residential care homes should also be considered as having equal sensitivity to residential areas for the purposes of this assessment.
- *Medium:*
  - Locations where the people exposed are workers, and exposure is over a time period relevant to the air quality objective for PM_{10} (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day); and,
  - Indicative examples include office and shop workers but will generally not include workers occupationally exposed to PM_{10}, as protection is covered by Health and Safety at Work legislation.
- *Low:*
  - Locations where human exposure is transient; and,
  - Indicative examples include public footpaths, playing fields, parks and shopping streets.

The sensitivity of the area should be derived for each of the four activities: demolition, construction, earthworks and trackout, using the following table:

Table A2 - Sensitivity of the Area to Human Health Impacts

Receptor Sensitivity	Annual Mean PM_{10} Concentration	Number of Receptors	Distance from the Source (m)				
			<20	<50	<100	<200	<350
High	>32 ·g/m^3	>100	High	High	High	Medium	Low
		10-100	High	High	Medium	Low	Low
		1-10	High	Medium	Low	Low	Low
	28 - 32 ·g/m^3	>100	High	High	Medium	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	High	Medium	Low	Low	Low
	24 – 28 ·g/m^3	>100	High	Medium	Low	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	<24 ·g/m^3	>100	Medium	Low	Low	Low	Low
		10-100	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low

Receptor Sensitivity	Annual Mean PM_{10} Concentration	Number of Receptors	Distance from the Source (m)				
			<20	<50	<100	<200	<350
Medium	-	>10	High	Medium	Low	Low	Low
	-	1-10	Medium	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low	Low

Note - The likely routes the construction traffic will use should also be included to enable the presence of trackout receptors to be included in the assessment. As a general guidance, without site-specific mitigation, trackout may occur along the public highway up to 500 m from large sites (as defined in step 2A), 200 m from medium sites and 50 m from small sites, as measured from the site exit.

Sensitivities of Receptors to Ecological Effects

- *High:*
  - Locations with an international or national designation and the designated features may be affected by dust soiling;
  - Locations where there is a community of a particularly dust sensitive species such as vascular species included in the Red Data List For Great Britain; and,
  - Indicative examples include a Special Area of Conservation (SAC) designated for acid heathlands or a local site designated for lichens adjacent to the demolition of a large site containing concrete (alkali) buildings.
- *Medium:*
  - Locations where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown;
  - Locations with a national designation where the features may be affected by dust deposition; and,
  - Indicative example is a Site of Special Scientific Interest (SSSI) with dust sensitive features.
- *Low:*
  - Locations with a local designation where the features may be affected by dust deposition; and,
  - Indicative example is a local Nature Reserve with dust sensitive features.

The sensitivity of the area should be derived for each of the four activities: demolition, construction, earthworks and trackout, using the following table:

Table A3 - Sensitivity of the Area to Ecological Impacts

Receptor Sensitivity	Distance from Source (m)	
	<20	<50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

Note - The likely routes the construction traffic will use should also be included to enable the presence of trackout receptors to be included in the assessment. As a general guidance, without site-specific mitigation, trackout may occur along the public highway up to 500 m from large sites (as defined in step 2A), 200 m from medium sites and 50 m from small sites, as measured from the site exit.

Step 2C - Defining the Risk of Impacts

The risk of impacts with no mitigation is determined by combining the dust emission magnitude determined in Step 2A and the sensitivity of the area determined in Step 2B.

The following tables provide a method of assigning the level of risk for each activity.

Demolition

Table A4 - Risk of Dust Impacts, Demolition

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible

Earthworks

Table A5 - Risk of Dust Impacts, Earthworks

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Construction

Table A6 - Risk of Dust Impacts, Construction

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Trackout

Table A7 - Risk of Dust Impacts, Trackout

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Low Risk	Negligible
Low	Low Risk	Low Risk	Negligible

Step 3 – Site Specific Mitigation

The dust risk categories for each of the four activities determined in Step 2C should be used to define the appropriate, site-specific mitigation measures to be adopted.

These mitigation measures are contained within section 8.2 of the IAQM Guidance on the Assessment of Dust from Demolition and Construction.

Appendix B – Report Terms & Conditions

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