Isles of Scilly

Capital Delivery Programme

Air Quality and Construction Dust Risk Assessment

Bishop and Wolf Pumping Station and Screening Plant

Report Ref.		**107780-PEF-ZZ-602-TRP-EN-0002**				
Rev	**Suit**	**Description**	**Date**	**Originator**	**Checker**	**Approver**
P01	S2	Interim Draft	06/08/2024	P Wilson B Collier (Air Quality Consultants)	D Towler-Tinlin	J Davey
P02	S3	Updated from Briefing Note	28/08/2024	P Wilson B Collier	E Stone	J Davey
P03	S4	For acceptance	11/12/2024	P Wilson B Collier	E Samways	J Davey
P04	S4	For acceptance – update based on Client comment	09/01/2025	P Wilson B Collier	E Samways	J Davey

Ref. reference. Rev revision. Suit suitability.

Prepared for

Trant Engineering Limited

Rushington House
Rushington
Southampton
SO40 9LT

Prepared by

Pell Frischmann

5th Floor
85 Strand
London
WC2R 0DW

Report

Bishop and Wolf Pumping Station and Screening Plant, Scilly

Air Quality and Construction Dust Risk Assessment

For Pell Frischmann

9 January 2025

Air Quality CONSULTANTS | PART OF Logika Group

Document Control

Project Title:	Bishop and Wolf Pumping Station and Screening Plant, Scilly
Project Number:	J10-15482A-10
Client:	Pell Frischmann
Principal Contact:	Emma Stone
Document Title:	Air Quality and Construction Dust Risk Assessment
Document Number:	J10-15482A-10-4
Prepared By:	Ben Collier
Reviewed By:	Penny Wilson

Revision History

01	01/08/2024
02	27/08/2024
03	02/12/2024
04	09/01/2025

Registered Office: 3rd Floor St Augustine's Court, 1 St. Augustine's Place Bristol BS1 4UD Tel: +44(0)117 974 1086

24 Greville Street, Farringdon, London, EC1N 8SS Tel: +44(0)20 3873 4780

First Floor, Patten House, Moulders Lane, Warrington WA1 2BA Tel: +44(0)1925 937 195

8-9 Ship St, Brighton and Hove, Brighton BN1 1AD Tel: +44(0)20 3873 4780

Avenue du Port, 86c Box 204, 1000 Bruxelles Tel: +44(0)20 3873 47840

Contents

Tables

Figures

1 Introduction

1.1 This report describes the potential air quality impacts associated with the construction of a screening plant replacing the existing Bishop and Wolf sewage pumping station located off Little Porth Road, Hugh Town, St Mary's, Isles of Scilly. The proposed development is described as:

"the construction of an enlarged wastewater infrastructure building, which will replace the existing Bishop and Wolf SPS building. The new building will house new variable-speed pumps and a new screening plant. The screening plant will remove objects such as rags, paper, plastics, and metals to prevent damage and clogging of downstream equipment, piping, and appurtenances as well as ensuring they do not enter the marine environment."

1.2 Odour impacts associated with the operation of the new plant are assessed in the accompanying Odour Assessment (report no. J10/15482A/10/1/F2, dated 27th August 2024).

1.3 Once operational, the proposed development will not lead to an appreciable change in vehicle flows on local roads, and thus there will not be any impact on air quality at existing residential properties along the affected road network. Consideration is given to the potential impacts of emissions from vehicles accessing the site during the construction phase. The main air pollutants of concern related to road traffic emissions are nitrogen dioxide (NO_2) and fine particulate matter (PM_{10} and $PM_{2.5}$).

1.4 The location and setting of the proposed development is shown in Figure 1.

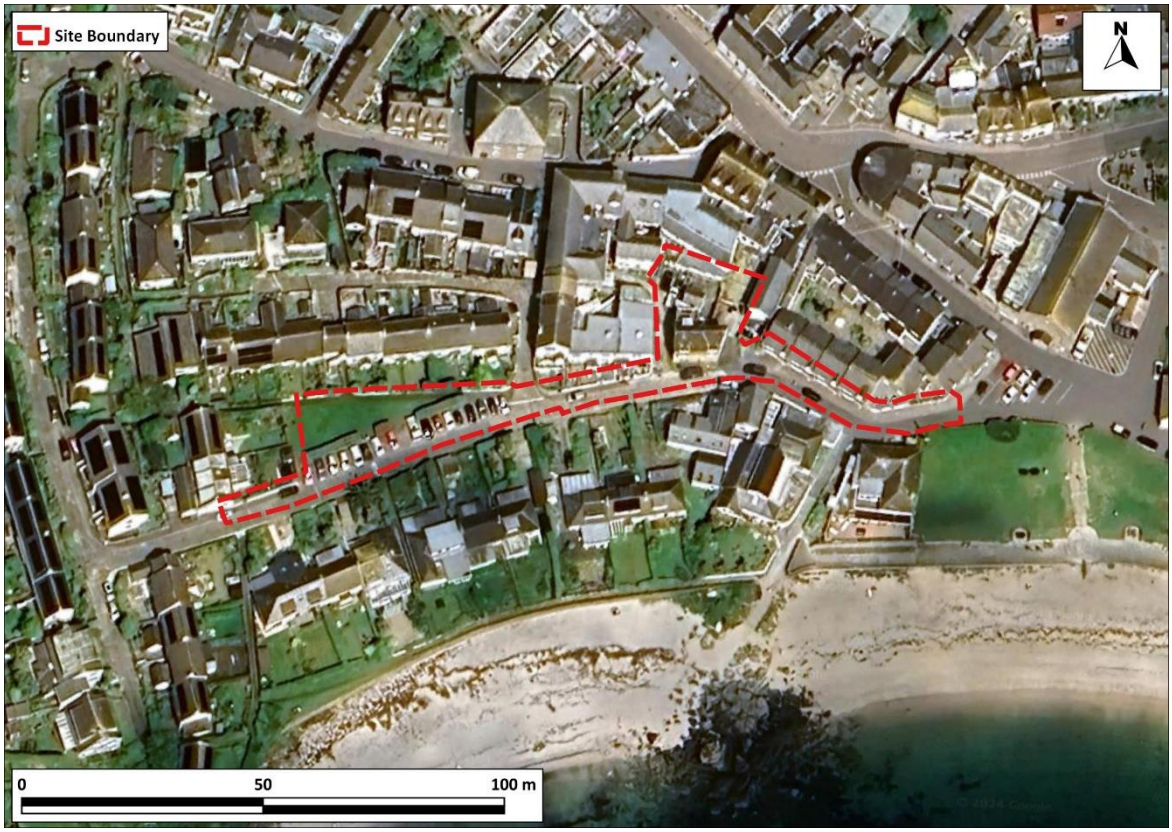

Figure 1: Proposed Development Setting

Imagery ©2024 Airbus, CNES / Airbus, Getmapping plc, Maxar Technologies, Map data ©2024

1.5 There is also the potential for the construction activities to impact upon existing properties. The main pollutants of concern related to construction activities are dust and PM_{10}. This report includes the assessment of construction dust impacts, focussing on the anticipated duration of the works.

1.6 The risk assessment has been carried out following the methodology published by the Institute of Air Quality Management (IAQM) (IAQM, 2024), as summarised in Appendix A1. The full risk assessment is set out in Section 3.

1.7 The IAQM guidance is clear that, with appropriate mitigation in place, the impacts of construction dust will normally be 'not significant'. The aim of the assessment set out in Section 3 is thus to determine the appropriate level of mitigation so as to ensure that impacts will normally not be significant. The best-practice mitigation measures set out in Appendix A3 have been taken from Chapter 8 of the IAQM guidance but have been refined in liaison with the construction contractor. They are considered appropriate to mitigate the level of risk set out in Section 3.

1.8 Certain aspects of this assessment require professional judgement, and the experience of the consultants preparing the assessment is set out in Appendix A2.

2 Construction Phase Air Quality Impact Assessment

Construction Traffic

2.1 The size of delivery vehicles constrained by the island's roads and the construction phase workforce is unlikely to exceed 10 people. In total the construction of the SPS could lead to a maximum of 22 2-way vehicle movements per day.

2.2 Based on the estimates above, typical traffic volumes generated by the site during the construction works will be well below the relevant screening criteria of 100 AADT for heavy vehicles and 500 AADT for light vehicles recommended by EPUK/IAQM guidance (Moorcroft and Barrowcliffe et al, 2017). It is, therefore, not considered necessary to assess the impacts of traffic emissions during the construction phase and it can be concluded that the proposed development will not have a significant impact on local roadside air quality as a result of construction traffic emissions.

On-Site Exhaust Emissions

2.3 The IAQM guidance (IAQM, 2024) states:

"Experience of assessing the exhaust emissions from on-site plant (also known as non-road mobile machinery or NRMM) and site traffic suggests that they are unlikely to make a significant impact on local air quality, and in the vast majority of cases they will not need to be quantitatively assessed. For site plant and on-site traffic, consideration should be given to the number of plant/vehicles and their operating hours and locations to assess whether a significant effect is likely to occur".

2.4 The proposed development is very small; with construction plant expected to be limited to a 5 tonne excavator, 3 tonne dumper, HiAb crane, compactor/roller and MEWP. As a result, it is judged that there no risk of significant effects at existing receptors as a result of on-site machinery emissions.

3 Construction Dust Risk Assessment

3.1 The construction works will give rise to a risk of dust impacts during demolition, earthworks and construction. Step 1 of the assessment procedure is to screen the need for a detailed assessment. There are receptors within the distances set out in the guidance (see Appendix A1), thus a detailed assessment is required. The following section sets out Step 2 of the assessment procedure.

Potential Dust Emission Magnitude

Demolition

3.2 There will be a requirement to demolish the existing sewage pumping station which consists of one very small brick building with a volume of well below 12,000 m^3. The method of demolition has not yet been decided. Based on the example definitions set out in Table A1-1 in Appendix A1, the dust emission class for demolition is considered to be small.

Earthworks

3.3 The characteristics of the soil at the site have been defined using the British Geological Survey's UK Soil Observatory website (British Geological Survey, 2024), as set out in Table 1. Overall, it is considered that, when dry, this soil has the potential to be moderately dusty.

Table 1: Summary of Soil Characteristics

Category	Record
Soil Layer Thickness	Deep
Soil Parent Material Grain Size	Mixed (Argillic – Arenaceous [a])
European Soil Bureau Description	Colluvium
Soil Group	Medium to Light (Silty) to Heavy
Soil Texture	Clayey Loam [b] to Sandy Loam

[a] grain size 0.06 – 2.0 mm.

[b] a loam is composed mostly of sand and silt.

3.4 The building site covers approximately 100 m^2 and most of this will be subject to earthworks, involving removal of the foundations of the demolished buildings and breaking up of a concreted area. The Parson's Field temporary compound area will also be subject to topsoil stripping, covering an area of approximately 250 m^2. Dust will arise mainly from the handling of dusty materials (such as dry soil). Based on the example definitions set out in Table A1-1 in Appendix A1, the dust emission class for earthworks is considered to be small.

Construction

3.5 The proposed development involves the installation of a reinforced concrete foundation pad and construction of a locally erected steel framed building, along with installation of a geomembrane and crushed aggregate to form the surface of the Parson's Field temporary compound area. This equates to a total a volume of well below 12,000 m^3. The steel frame will be clad with block walls and timber/render cladding with acoustic insulation. Dust will arise from the handling and storage of dusty materials and from the cutting of concrete. The construction will take place over a period of up to 9-

months. Based on the example definitions set out in Table A2-1 in Appendix A1, the dust emission class for construction is considered to be small.

Trackout

3.6 The construction compound with have a compounded aggregate surface and the footprint of the scheme is extremely small. As a result, there will be no vehicles travelling over un-paved ground. Therefore, there will be no dust emissions associated with trackout.

3.7 Table 2 summarises the dust emission magnitude for the proposed development.

Table 2: Summary of Dust Emission Magnitude

Source	Dust Emission Magnitude
Demolition	Small
Earthworks	Small
Construction	Small
Trackout	n/a

Sensitivity of the Area

3.8 This assessment step combines the sensitivity of individual receptors to dust effects with the number of receptors in the area and their proximity to the site. It also considers additional site-specific factors such as topography and screening, and in the case of sensitivity to human health effects, baseline PM_{10} concentrations.

3.9 The IAQM guidance explains that residential properties are 'high' sensitivity receptors to dust soiling, (Table A2-2 in Appendix A1). Residential properties are also classified as being of 'high' sensitivity to human health effects, while places of work are classified as being of 'medium' sensitivity. There are between 10 and 100 residential properties within 20 m of the site (see Figure 2).

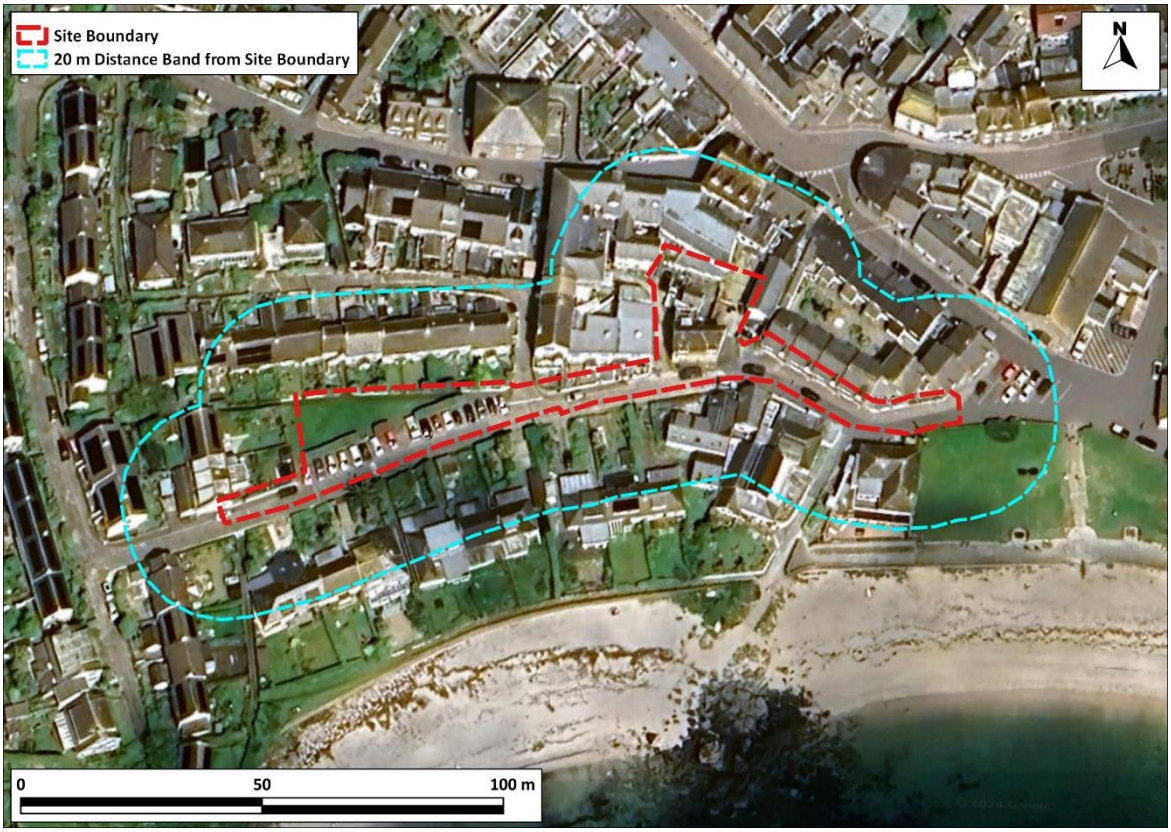

Figure 2: 20 m Distance Band around Site Boundary

Imagery ©2024 Airbus, CNES / Airbus, Getmapping plc, Maxar Technologies, Map data ©2024

Sensitivity of the Area to Effects from Dust Soiling

3.10 Using the information set out in Paragraph 3.9 and Figure 2 alongside the matrix set out in Table A1-3 in Appendix A1, the area surrounding the onsite works is of 'high' sensitivity to dust soiling.

Sensitivity of the Area to any Human Health Effects

3.11 The matrix in Table A1-4 in Appendix A1 requires information on the baseline annual mean PM_{10} concentration in the area. The annual mean PM_{10} concentration is best described by the background concentration of 8.7 µg/m^3, defined using Defra's 2018-based background maps (Defra, 2024a). Using the information set out in Paragraphs 3.9 and Figure 2 alongside the matrix in Table A1-4 in Appendix A1, the area surrounding the onsite works is of 'low' sensitivity to human health effects.

Sensitivity of the Area to any Ecological Effects

3.12 The guidance only considers designated ecological sites within 50 m to have the potential to be impacted by the construction works. There are no designated ecological sites within 50 m of the site boundary, thus ecological impacts will not be considered further.

Summary of the Area Sensitivity

3.13 Table 3 summarises the sensitivity of the area around the proposed construction works.

Table 3: Summary of the Area Sensitivity

Effects Associated With:	Sensitivity of the Surrounding Area On-site Works
Dust Soiling	High Sensitivity
Human Health	Low Sensitivity

Risk and Significance

3.14 The dust emission magnitudes in Table 2 have been combined with the sensitivities of the area in Table 3 using the matrix in Table A1-5 in Appendix A1, in order to assign a risk category to each activity. The resulting risk categories for the four construction activities, without mitigation, are set out in Table 4. These risk categories have been used to determine the appropriate level of mitigation as set out in Appendix A3 (step 3 of the assessment procedure).

Table 4: Summary of Risk of Impacts Without Mitigation

Source	Dust Soiling	Human Health
Demolition	Medium Risk	Negligible
Earthworks	Low Risk	Negligible
Construction	Low Risk	Negligible
Trackout	n/a	n/a

3.15 The IAQM guidance does not provide a method for assessing the significance of effects before mitigation, and advises that pre-mitigation significance should not be determined. With appropriate mitigation in place, the IAQM guidance is clear that the residual effect will normally be 'not significant' (IAQM, 2024).

3.16 The mitigation measures are outlined in Appendix A3. Where mitigation measures rely on water, it is expected that only sufficient water will be applied to damp down the material. There should not be any excess to potentially contaminate local watercourses.

4 Conclusions

4.1 The construction works have the potential to create dust. During construction it will therefore be necessary to apply a package of mitigation measures to minimise dust emissions. Appropriate measures have been recommended and, with these measures in place, it is expected that any residual effects will be 'not significant'.

4.2 The proposed development will lead to a small increase in vehicle flows on local roads during construction, which may impact on air quality at existing residential properties along the affected road network. However, these fall well below the relevant screening criteria and can therefore be considered 'not significant'.

5 References

British Geological Survey (2024) *UK Soil Observatory Map Viewer*.

Defra (2024a) *Local Air Quality Management (LAQM) Support Website*, [Online], Available: http://laqm.defra.gov.uk/.

IAQM (2024) *Guidance on the Assessment of Dust from Demolition and Construction v2.2*, Available: http://iaqm.co.uk/guidance/.

IAQM (2024) *Guidance on the Assessmentof Dust from Demolition and Construction v2.2*, [Online], Available: http://iaqm.co.uk/guidance/.

Moorcroft and Barrowcliffe et al (2017) *Land-Use Planning & Development Control: Planning For Air Quality v1.2*, IAQM, London, Available: http://iaqm.co.uk/guidance/.

6 Glossary

AQC	Air Quality Consultants
Defra	Department for Environment, Food and Rural Affairs
DMP	Dust Management Plan
EPUK	Environmental Protection UK
HDV	Heavy Duty Vehicles (> 3.5 tonnes)
HMSO	Her Majesty's Stationery Office
IAQM	Institute of Air Quality Management
LAQM	Local Air Quality Management
µg/m^3	Microgrammes per cubic metre
NO	Nitric oxide
NO2	Nitrogen dioxide
NOx	Nitrogen oxides (taken to be NO2 + NO)
PM_{10}	Small airborne particles, more specifically particulate matter less than 10 micrometres in aerodynamic diameter
$PM_{2.5}$	Small airborne particles less than 2.5 micrometres in aerodynamic diameter

7 Appendices

A1 Construction Dust Assessment Procedure

A1.1 The criteria developed by IAQM (2024) divide the activities on construction sites into four types to reflect their different potential impacts. These are:

- demolition;
- earthworks;
- construction; and
- trackout.

A1.2 The assessment procedure includes the four steps summarised below:

STEP 1: Screen the Need for a Detailed Assessment

A1.3 An assessment is required where there is a human receptor within 250 m of the boundary of the site and/or within 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the site entrance(s), or where there is an ecological receptor within 50 m of the boundary of the site and/or within 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the site entrance(s).

A1.4 Where the need for a more detailed assessment is screened out, it can be concluded that the level of risk is negligible and that any effects will be 'not significant'. No mitigation measures beyond those required by legislation will be required.

STEP 2: Assess the Risk of Dust Impacts

A1.5 A site is allocated to a risk category based on two factors:

- the scale and nature of the works, which determines the potential dust emission magnitude (Step 2A); and
- the sensitivity of the area to dust effects (Step 2B).

A1.6 These two factors are combined in Step 2C, which is to determine the risk of dust impacts with no mitigation applied. The risk categories assigned to the site may be different for each of the four potential sources of dust (demolition, earthworks, construction and trackout).

Step 2A – Define the Potential Dust Emission Magnitude

A1.7 Dust emission magnitude is defined as either 'Small', 'Medium', or 'Large'. The IAQM guidance explains that this classification should be based on professional judgement, but provides the examples in Table A1-1.

Table A1-1: Examples of How the Dust Emission Magnitude Class May be Defined

Class	Examples
Demolition	
Large	Total building volume >75,000 m3, potentially dusty construction material (e.g. concrete), on site crushing and screening, demolition activities >12 m above ground level

Class	Examples
Medium	Total building volume 12,000 m3 – 75,000 m3, potentially dusty construction material, demolition activities 6-12 m above ground level
Small	Total building volume <12,000 m3, construction material with low potential for dust release (e.g. metal cladding or timber), demolition activities <6 m above ground, demolition during wetter months
Earthworks	
Large	Total site area >110,000 m2, potentially dusty soil type (e.g. clay, which will be prone to suspension when dry to due small particle size), >10 heavy earth moving vehicles active at any one time, formation of bunds >6 m in height.
Medium	Total site area 18,000 m2 – 110,000 m2, moderately dusty soil type (e.g. silt), 5-10 heavy earth moving vehicles active at any one time, formation of bunds 3 m – 6 m in height.
Small	Total site area <18,000 m2, soil type with large grain size (e.g. sand), <5 heavy earth moving vehicles active at any one time, formation of bunds <3 m in height.
Construction	
Large	Total building volume >75,000 m3, on site concrete batching; sandblasting
Medium	Total building volume 12,000 m3 – 75,000 m3, potentially dusty construction material (e.g. concrete), on site concrete batching
Small	Total building volume <12,000 m3, construction material with low potential for dust release (e.g. metal cladding or timber)
Trackout	
Large	>50 HDV (>3.5t) outward movements in any one day, potentially dusty surface material (e.g. high clay content), unpaved road length >100 m
Medium	20-50 HDV (>3.5t) outward movements in any one day, moderately dusty surface material (e.g. high clay content), unpaved road length 50 m – 100 m
Small	<20 HDV (>3.5t) outward movements in any one day, surface material with low potential for dust release, unpaved road length <50 m

[a] These numbers are for vehicles that leave the site after moving over unpaved ground.

Step 2B – Define the Sensitivity of the Area

A1.8 The sensitivity of the area is defined taking account of a number of factors:

- the specific sensitivities of receptors in the area;
- the proximity and number of those receptors;
- in the case of PM_{10}, the local background concentration; and
- site-specific factors, such as whether there are natural shelters to reduce the risk of wind-blown dust.

A1.9 The first requirement is to determine the specific sensitivities of local receptors. The IAQM guidance recommends that this should be based on professional judgment, taking account of the principles in

Table A1-2.. These receptor sensitivities are then used in the matrices set out in Table A1-3, Table A1-4 to determine the sensitivity of the area. Finally, the sensitivity of the area is considered in relation to any other site-specific factors, such as the presence of natural shelters etc., and any required adjustments to the defined sensitivities are made.

Step 2C – Define the Risk of Impacts

A1.10 The dust emission magnitude determined at Step 2A is combined with the sensitivity of the area determined at Step 2B to determine the risk of impacts with no mitigation applied. The IAQM guidance provides the matrix in Table A1-5 as a method of assigning the level of risk for each activity.

STEP 3: Determine Site-specific Mitigation Requirements

A1.11 The IAQM guidance provides a suite of recommended and desirable mitigation measures which are organised according to whether the outcome of Step 2 indicates a low, medium, or high risk. The list provided in the IAQM guidance has been used as the basis for the requirements set out in Appendix A3.

STEP 4: Determine Significant Effects

A1.12 The IAQM guidance does not provide a method for assessing the significance of effects before mitigation, and advises that pre-mitigation significance should not be determined. With appropriate mitigation in place, the IAQM guidance is clear that the residual effect will normally be 'not significant'.

A1.13 The IAQM guidance recognises that, even with a rigorous dust management plan in place, it is not possible to guarantee that the dust mitigation measures will be effective all of the time, for instance under adverse weather conditions. The local community may therefore experience occasional, short-term dust annoyance. The scale of this would not normally be considered sufficient to change the conclusion that the effects will be 'not significant'.

Table A1-2: Principles to be Used When Defining Receptor Sensitivities

Class	Principles	Examples
Sensitivities of People to Dust Soiling Effects		
High	users can reasonably expect enjoyment of a high level of amenity; or the appearance, aesthetics or value of their property would be diminished by soiling; and the people or property would reasonably be expected to be present continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land	dwellings, museum and other culturally important collections, medium and long term car parks and car showrooms
Medium	users would expect to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home; or the appearance, aesthetics or value of their property could be diminished by soiling; or 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	parks and places of work
Low	the enjoyment of amenity would not reasonably be expected; or there is property that would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling; or there is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land	playing fields, farmland (unless commercially-sensitive horticultural), footpaths, short term car parks and roads
Sensitivities of People to the Health Effects of PM_{10}		
High	locations where members of the public may be exposed for eight hours or more in a day	residential properties, hospitals, schools and residential care homes
Medium	locations where the people exposed are workers, and where individuals may be exposed for eight hours or more in a day.	may include office and shop workers, but will generally not include workers occupationally exposed to PM_{10}
Low	locations where human exposure is transient	public footpaths, playing fields, parks and shopping streets
Sensitivities of Receptors to Ecological Effects		
High	locations with an international or national designation and the designated features may be affected by dust soiling; or locations where there is a community of a particularly dust sensitive species	Special Areas of Conservation with dust sensitive features

Class	Principles	Examples
Medium	locations where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown; or locations with a national designation where the features may be affected by dust deposition	Sites of Special Scientific Interest with dust sensitive features
Low	locations with a local designation where the features may be affected by dust deposition	Local Nature Reserves with dust sensitive features

Table A1-3: Sensitivity of the Area to Dust Soiling Effects on People and Property[1]

Receptor Sensitivity	Number of Receptors	Distance from the Source (m)			
		<20	<50	<100	<250
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

Table A1-4: Sensitivity of the Area to Human Health Effects [1]

Receptor Sensitivity	Annual Mean PM_{10}	Number of Receptors	Distance from the Source (m)			
			<20	<50	<100	<250
High	>32 µg/m3	>100	High	High	High	Medium
		10-100	High	High	Medium	Low
		1-10	High	Medium	Low	Low
	28-32 µg/m3	>100	High	High	Medium	Low
		10-100	High	Medium	Low	Low
		1-10	High	Medium	Low	Low
	24-28 µg/m3	>100	High	Medium	Low	Low
		10-100	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	<24 µg/m3	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low

[1] For demolition, earthworks and construction, distances are taken either from the dust source or from the boundary of the site. For trackout, distances are measured from the sides of roads used by construction traffic. Without mitigation, trackout may occur from roads up to 250 m, as measured from the site exit. The impact declines with distance from the site, and it is only neces¬sary to consider trackout impacts up to 50 m from the edge of the road.

Receptor Sensitivity	Annual Mean PM_{10}	Number of Receptors	Distance from the Source (m)			
			<20	<50	<100	<250
		1-10	Low	Low	Low	Low
Medium	>32 µg/m3	>10	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	28-32 µg/m3	>10	Medium	Low	Low	Low
		1-10	Low	Low	Low	Low
	24-28 µg/m3	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
	<24 µg/m3	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low

Table A1-5: Defining the Risk of Dust Impacts

Sensitivity of the Area	Dust Emission Magnitude		
	Large	Medium	Small
Demolition			
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible
Earthworks			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible
Construction			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible
Trackout			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

A2 Professional Experience

Penny Wilson, BSc (Hons) CSci MIEnvSc MIAQM

Ms Wilson is a Technical Director with AQC, with more than 20 years' relevant experience in the field of air quality. She has been responsible for numerous assessments for a range of infrastructure developments including power stations, road schemes, ports, airports and residential/commercial developments. The assessments have covered operational and construction impacts, including dust and odour nuisance. She also provides services to local authorities in support of their LAQM duties, including the preparation of Review and Assessment and Action Plan reports, as well as audits of Air Quality Assessments submitted with planning and DCO applications. She has provided expert evidence to a number of Public Inquiries and civil court, and is a Member of the Institute of Air Quality Management and a Chartered Scientist.

Ben Collier, BSc (Hons)

Mr Collier is an Assistant Consultant with AQC and joined the company in 2023. Throughout his BSc Environmental Science degree at the University of the West of England, he developed an interest in planetary processes and impacts, in particular those in relation to air quality. During his studies, Mr Collier completed several atmospheric-related projects, with topics varying from the impact of urban air pollution to the potential of renewable energy to improve air quality; many of these included GIS based analysis. Since joining AQC he has numerous air quality assessments, including road traffic modelling and construction dust risk assessments.

A3 Construction Mitigation

A3.1 Table A3-1 sets out a list of best-practice measures from the IAQM guidance (IAQM, 2024) that should be incorporated into the specification for the works. These measures should ideally be written into a Dust Management Plan. Some of the measures may only be necessary during specific phases of work, or during activities with a high potential to produce dust, and the list should be refined and expanded upon in liaison with the construction contractor when producing the Dust Management Plan.

Table A3-1: Best-Practice Mitigation Measures Recommended for the Works

Measure	Desirable	Highly Recommended
Communications		
Develop and implement a stakeholder communications plan that includes community engagement before and during work 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 environmental manager/engineer or the site manager		✓
Display the head or regional office contact information		✓
Dust Management Plan		
Develop and implement a Dust Management Plan (DMP) approved by the Local Authority which documents the mitigation measures to be applied, and the procedures for their implementation and management		✓
Site Management		
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 off- site, and the action taken to resolve the situation in the log book		✓
Monitoring		
Undertake daily on-site and off-site inspections 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 100 m of the site boundary, with cleaning to be provided if necessary	✓	

Measure	Desirable	Highly Recommended
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		✓
Preparing and Maintaining the Site		
Plan the 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 active 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		✓
Operating Vehicle/Machinery and Sustainable Travel		
Ensure all vehicles switch off their 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		✓
Implement a Travel Plan that supports and encourages sustainable staff travel (public transport, cycling, walking, and car-sharing)	✓	
Operations		
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		✓

Measure	Desirable	Highly Recommended
Use enclosed chutes, 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		✓
Waste Management		
Avoid bonfires and burning of waste materials		✓
Measures Specific to 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		✓
Measures Specific to 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	✓	