HELIOS RENEWABLE ENERGY PROJECT

Preliminary Environmental Information Report

Volume 3: Technical Appendices

Appendix 2.3: Construction Dust Risk Assessment

Construction Dust Risk Assessment:

Helios Renewable Energy Project

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Experts in air quality management & assessment

Document Control

Client	Enso Energy	**Principal Contact**	Kirsty Lodge

Job Number	J10/14741A/10

Report Prepared By:	Wale Abiye & Dr Imogen Heard

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Air Quality Consultants Ltd
23 Coldharbour Road, Bristol BS6 7JT Tel: 0117 974 1086
24 Greville Street, Farringdon, London, EC1N 8SS Tel: 020 3873 4780
aqc@aqconsultants.co.uk

Registered Office: 23 Coldharbour Road, Bristol BS6 7JT
Companies House Registration No: 2814570

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1 Introduction

1.1 This report sets out the construction dust risk assessment for the proposed Helios Renewable Energy development. The Proposed Development comprises a renewable energy generating project on land located to the south-west of the village of Camblesforth in North Yorkshire (the Site).

1.2 The location of the Proposed Development is shown in Figure 1.

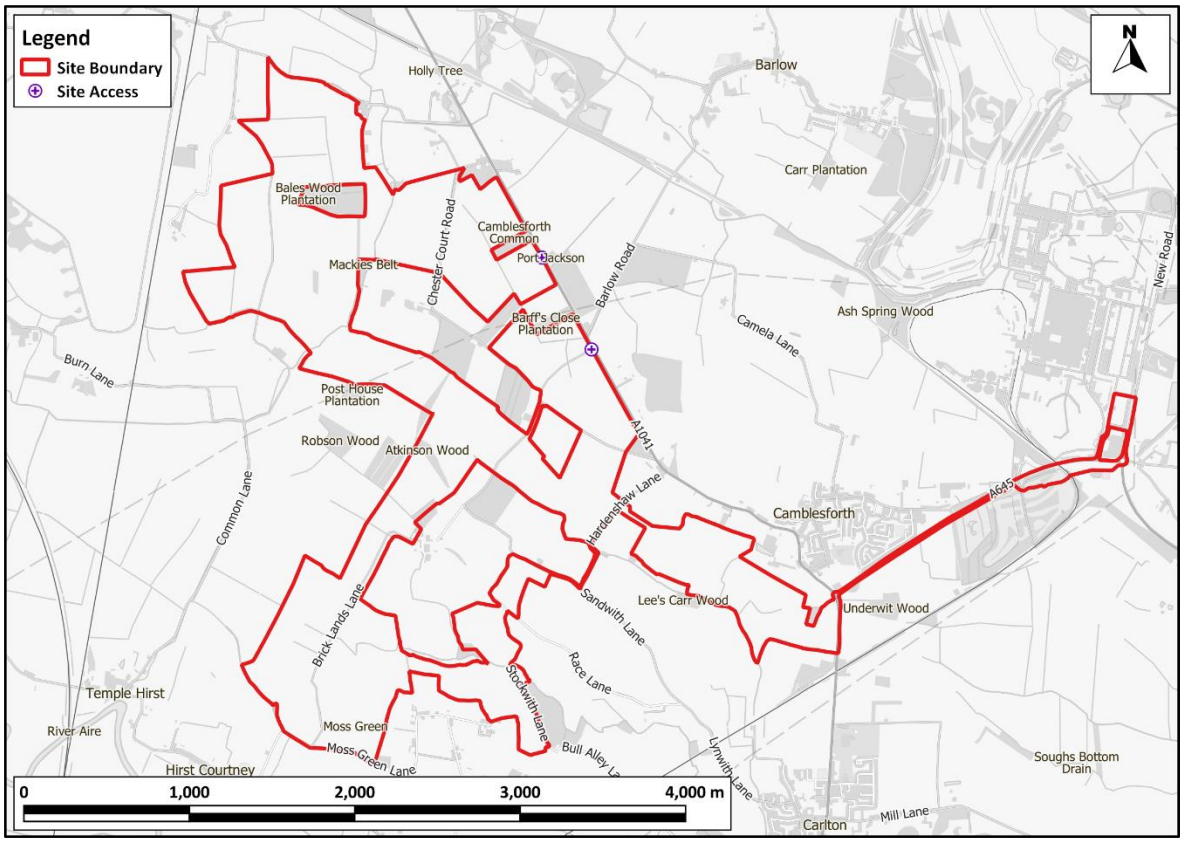

Figure 1: Proposed Development Setting in the Context of Air Quality

2 Policy Context

2.1 The Overarching National Policy Statements for Energy (EN-1) published by the Department of Energy and Climate Change (DECC)[1] and the Department for Energy Security and Net Zero (DESNZ)[2] recognise that the construction of energy infrastructure can impact human health by means of dust and air pollution and recommend that mitigation measures should be considered. The statement published by DESNZ states that:

"Construction should be undertaken in a way that reduces emissions, for example the use of low emission mobile plant during the construction, and demolition phases as appropriate, and consideration should be given to making these mandatory in DCO requirements.

…

A construction management plan may help clarify and secure mitigation."

1 Department of Energy and Climate Change (2011) Overarching National Policy Statement for Energy (EN-1)

2 Department for Energy Security and Net Zero (2023) Overarching National Policy Statement for Energy (EN-1)

3 Assessment Criteria and Approach

Scoping

3.1 A scoping exercise has been undertaken, and the Planning Inspectorate EIA Scoping Opinion comments have requested that a qualitative assessment of dust impacts based on relevant guidance (e.g. IAQM) should be provided to demonstrate that the measures proposed are consistent with the scale of effects.

Construction Dust Assessment Procedure

3.2 There are no formal assessment criteria for dust. In the absence of formal criteria, the approach developed by the Institute of Air Quality Management (IAQM)[3] has been used[4]. The criteria developed by IAQM divide the activities on construction sites into four types to reflect their different potential impacts. These are:

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

3.3 The assessment procedure includes the four steps summarised below:

STEP 1: Screen the Need for a Detailed Assessment

3.4 An assessment is required where there is a human receptor within 350 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 500 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 500 m from the site entrance(s).

3.5 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

3.6 A site is allocated to a risk category based on two factors:

[3] The IAQM is the professional body for air quality practitioners in the UK.

[4] IAQM (2016) Guidance on the Assessment of Dust from Demolition and Construction v1.1, Available: http://iaqm.co.uk/guidance/.

- 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).

3.7 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

3.8 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 1.

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

Class	Examples
Demolition	
Large	Total building volume >50,000 m^3, potentially dusty construction material (e.g. concrete), on site crushing and screening, demolition activities >20 m above ground level
Medium	Total building volume 20,000 m^3 – 50,000 m^3, potentially dusty construction material, demolition activities 10-20 m above ground level
Small	Total building volume <20,000 m^3, construction material with low potential for dust release (e.g. metal cladding or timber), demolition activities <10 m above ground, demolition during wetter months
Earthworks	
Large	Total site area >10,000 m^2, 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 >8 m in height, total material moved >100,000 tonnes
Medium	Total site area 2,500 m^2 – 10,000 m^2, moderately dusty soil type (e.g. silt), 5-10 heavy earth moving vehicles active at any one time, formation of bunds 4 m – 8 m in height, total material moved 20,000 tonnes – 100,000 tonnes
Small	Total site area <2,500 m^2, soil type with large grain size (e.g. sand), <5 heavy earth moving vehicles active at any one time, formation of bunds <4 m in height, total material moved <20,000 tonnes, earthworks during wetter months
Construction	
Large	Total building volume >100,000 m^3, piling, on site concrete batching; sandblasting
Medium	Total building volume 25,000 m^3 – 100,000 m^3, potentially dusty construction material (e.g. concrete), piling, on site concrete batching
Small	Total building volume <25,000 m^3, construction material with low potential for dust release (e.g. metal cladding or timber)
Trackout [a]	
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	10-50 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	<10 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

3.9 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.

3.10 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 2. These receptor sensitivities are then used in the matrices set out in Table 3, Table 4 and Table 5 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

3.11 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 6 as a method of assigning the level of risk for each activity.

STEP 3: Determine Site-specific Mitigation Requirements

3.12 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 Section 5.

STEP 4: Determine Significant Effects

3.13 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'.

3.14 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 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
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 3: Sensitivity of the Area to Dust Soiling Effects on People and Property [5]

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

Table 4: Sensitivity of the Area to Human Health Effects[5]

Receptor Sensitivity	Annual Mean PM_{10}	Number of Receptors	Distance from the Source (m)				
			<20	<50	<100	<200	<350
High	>32 µg/m³	>100	High	High	High	Medium	Low
		10-100	High	High	Medium	Low	Low
		1-10	High	Medium	Low	Low	Low
	28-32 µg/m³	>100	High	High	Medium	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	High	Medium	Low	Low	Low
	24-28 µg/m³	>100	High	Medium	Low	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	<24 µg/m³	>100	Medium	Low	Low	Low	Low
		10-100	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Medium	>32 µg/m³	>10	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	28-32 µg/m³	>10	Medium	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	24-28 µg/m³	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
	<24 µg/m³	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low	Low

Table 5: Sensitivity of the Area to Ecological Effects[5]

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

Table 6: 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	Low Risk	Negligible
Low	Low Risk	Low Risk	Negligible

[5] 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 500 m from sites with a *large* dust emission magnitude for trackout, 200 m from sites with a *medium* dust emission magnitude and 50 m from sites with a *small* dust emission magnitude, as measured from the site exit. The impact declines with distance from the site, and it is only necessary to consider trackout impacts up to 50 m from the edge of the road.

4 Impact Assessment

Construction Traffic

4.1 The Proposed Development will generate maximum Average Annual Daily Traffic (AADT) flows of 36 Heavy Duty Vehicle (HDV) and 158 Light Duty Vehicle (LDV) movements during the construction of the solar battery energy storage system and the grid connection, and during the removal of waste from the Site. These additional trips are well below the 100/500 AADT screening criteria for HDVs/LDVs recommended by Environmental Protection UK (EPUK) and the IAQM for use outside an Air Quality Management Area[6]. It is, therefore, not considered necessary to assess the impacts of traffic emissions during the construction phase and this has thus been scoped out of further assessment. 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

4.2 The IAQM guidance[4] 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".

4.3 The Site is large and is located in a predominantly rural area with few sensitive residential receptors nearby. Thus, NRMM emissions will mostly occur more than 50 m away from sensitive receptors. It is judged that there is no risk of significant effects at existing receptors as a result of on-site machinery emissions and this has thus been scoped out of further assessment.

Construction Dust and Particulate Matter Emissions

4.4 There is no requirement for demolition and construction of buildings on the Site. The construction works involves the mounting of solar photovoltaic (PV) modules on metal framework and setting in place support infrastructure; there will be no buildings constructed and there are no existing buildings requiring demolition. The principal activities that may produce dust include establishment of construction compounds and internal tracks, trenching for cable routes, and installation of concrete feet and piling. Thus there is only a risk of dust impacts during earthworks and trackout of dust and dirt by vehicles onto the public highway.

[6] 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/.

4.5 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, thus a detailed assessment is required. The following section sets out Step 2 of the assessment procedure.

Potential Dust Emission Magnitude

Earthworks

4.6 The characteristics of the soil at the Site have been defined using the British Geological Survey's UK Soil Observatory website[7], as set out in Table 7. Overall, it is considered that, when dry, this soil has the potential to be moderately dusty.

Table 7: Summary of Soil Characteristics

Category	Record
Soil Layer Thickness	Deep
Soil Parent Material Grain Size	Mixed (Argillaceous [a] – Arenaceous [b] – Rudaceous [c])
European Soil Bureau Description	Glaciolacustrine, Sandstone
Soil Group	Light (sandy) – Medium (Sandy), Heavy - Medium
Soil Texture	Clayey Loam [d] – Silty Loam, Sandy – Sandy Loam, Loamy

[a] grain size < 0.06 mm.

[b] grain size 0.06 – 2.0 mm.

[c] grain size > 2.0 mm.

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

4.7 The Site covers some 475.68 ha and most of this will be subject to earthworks. The earthworks will last around 24 months and dust will arise mainly from vehicles travelling over unpaved ground and from the handling of dusty materials (such as dry soil). Based on the example definitions set out in Table 1, the dust emission class for earthworks is considered to be *large*.

Trackout

4.8 There will be a maximum of 26 outward heavy vehicle movements per day which may track out dirt and dust from the Proposed Development. Based on the example definitions set out in Table 1, the dust emission class for trackout is considered to be *medium.*

4.9 Table 8 summarises the dust emission magnitude for the Proposed Development.

[7] British Geological Survey (2023a) UK Soil Observatory Map Viewer, Available: http://mapapps2.bgs.ac.uk/ukso/home.html.

Table 8: Summary of Dust Emission Magnitude

Source	Dust Emission Magnitude
Earthworks	Large
Trackout	Medium

Sensitivity of the Area

4.10 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.

4.11 The IAQM guidance, explains that residential properties are 'high' sensitivity receptors to dust soiling and human health effects while places of work are classified as being of 'medium' sensitivity (see Table 2). There are a few farmhouses along the A1041 northwest of Camblesforth but not within the 20 m band. There are approximately 50 residential properties within 20 m of the Site, all located at the eastern boundary (see Figure 2 and Figure 3). These residential properties are, however, located in an area where there will be minimal installation of infrastructure nearby.

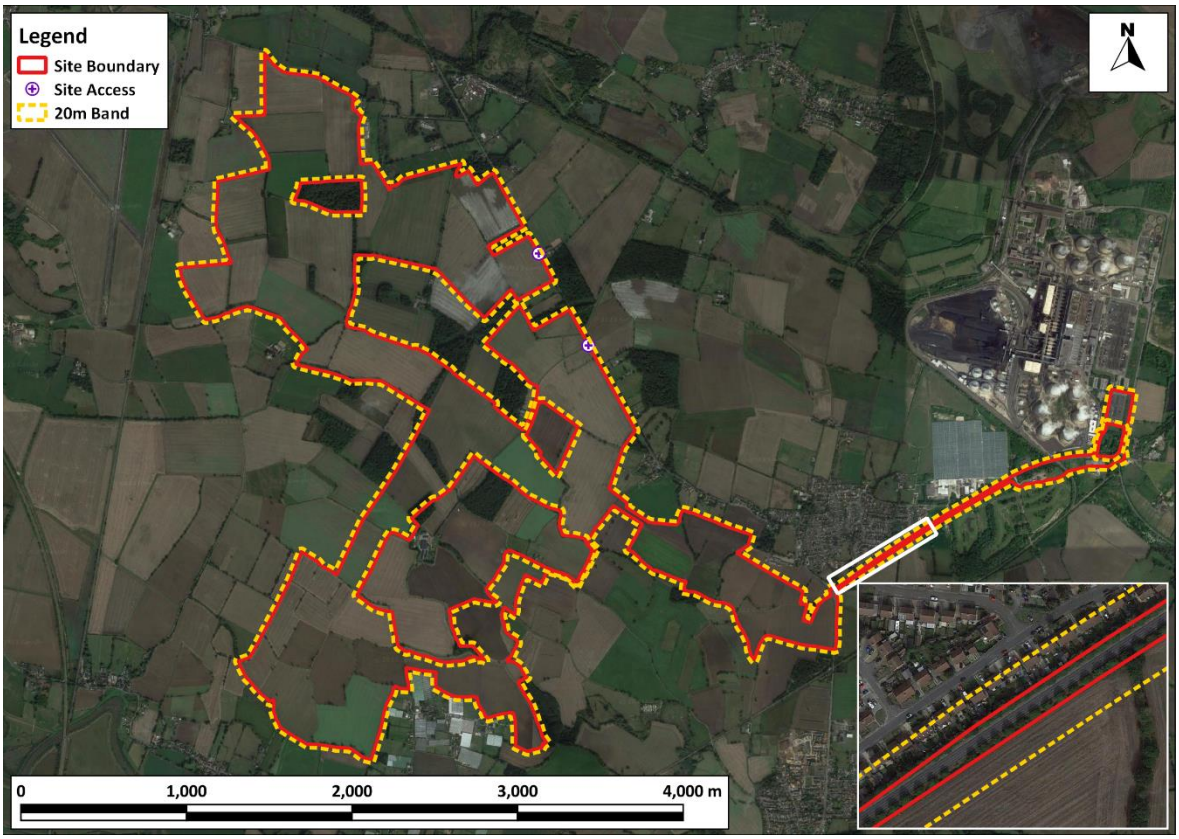

Figure 2: 20 m Distance Bands around Site Boundary

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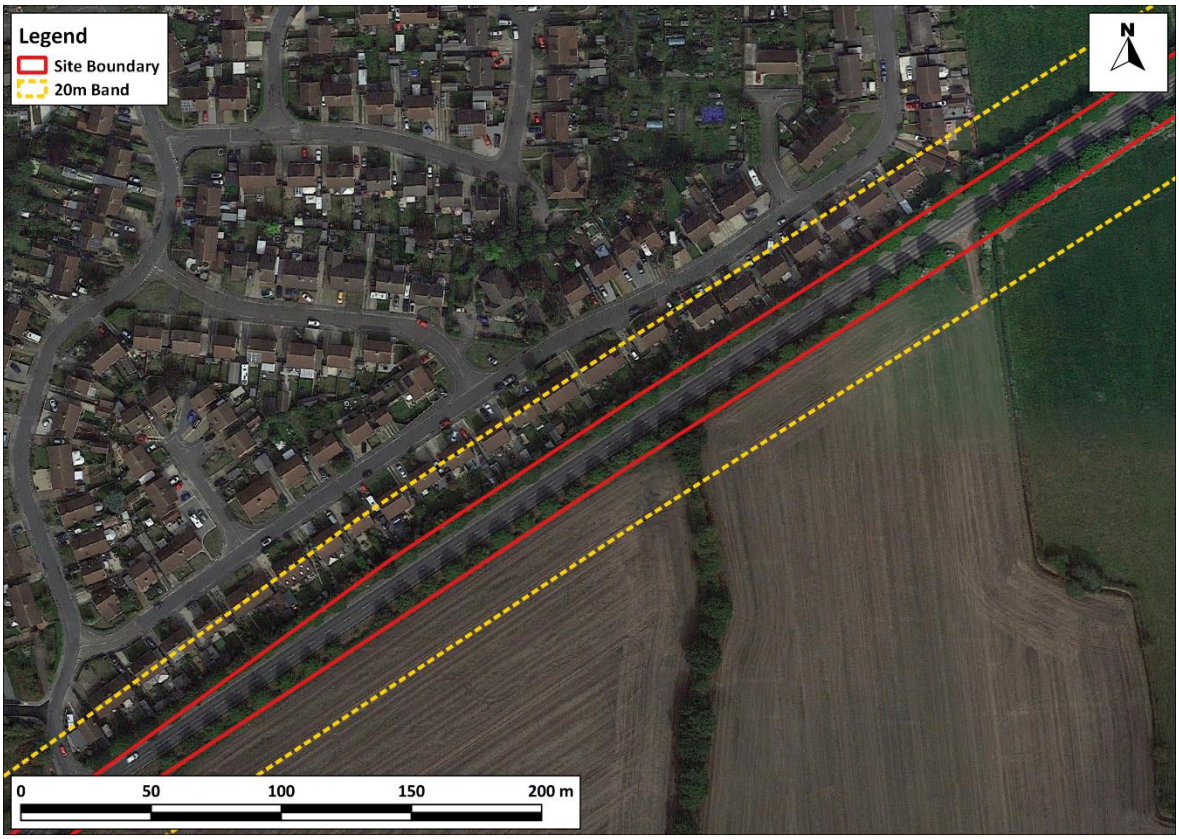

Figure 3: 20 m Distance Bands around Sensitive Receptors (inset in Figure 2)

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4.12 Table 8 shows that the dust emission magnitude for trackout is *medium* and Table 3 thus explains that there is a risk of material being tracked 200 m from the site exit. Two access points to be used by construction vehicles have been identified from the field boundaries plan. They are located along the A1041 road on the eastern boundary of the Site. There is one farmhouse within 50 m of the roads along which material could be tracked (see Figure 4).

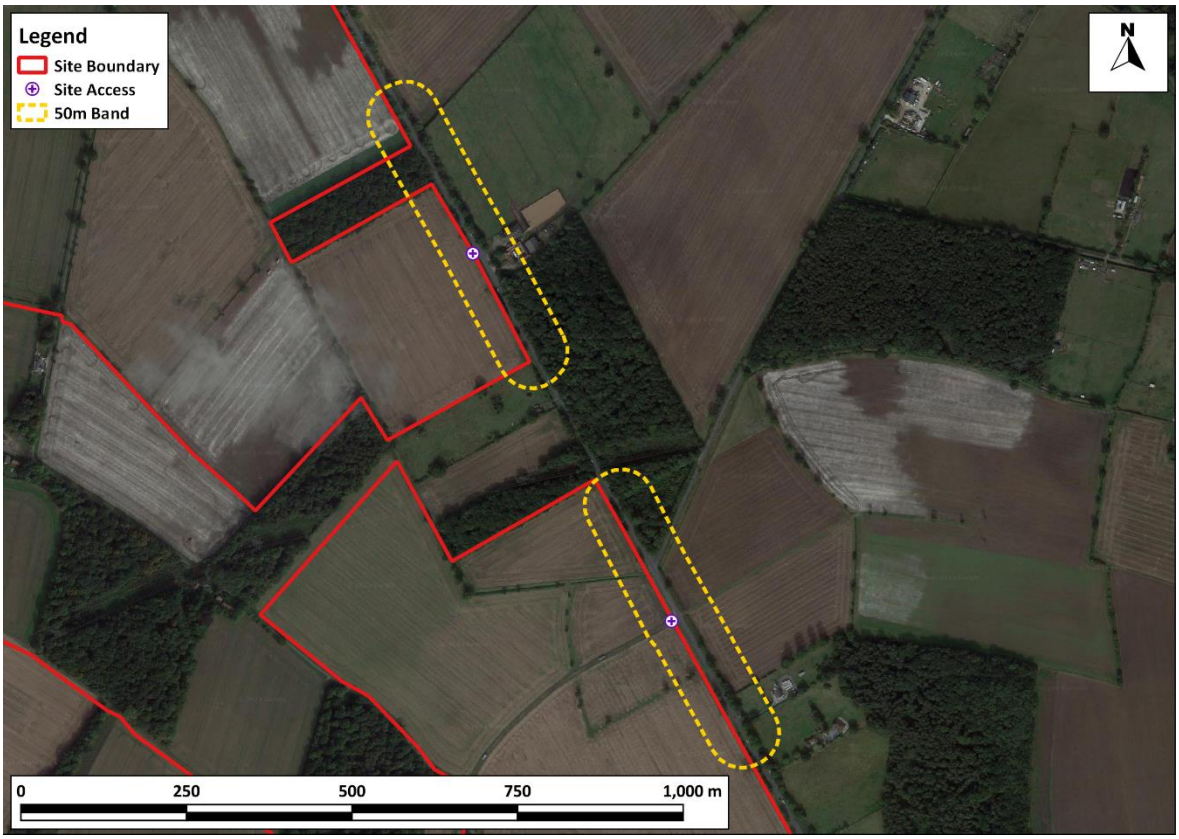

Figure 4: 50 m Distance Bands around Roads Used by Construction Traffic Within 200 m of the Site Exits

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Sensitivity of the Area to Effects from Dust Soiling

4.13 Using the information set out in Paragraph 4.11 and Figure 2 alongside the matrix set out in Table 3 together with professional judgment, the area surrounding the earthworks is of 'medium' sensitivity to dust soiling. Using the information set out in Paragraph 4.12 and Figure 4 alongside the same matrix, the area is of 'low' sensitivity to dust soiling due to trackout.

Sensitivity of the Area to any Human Health Effects

4.14 The matrix in Table 4 requires information on the baseline annual mean PM_{10} concentration in the area. The existing annual mean PM_{10} concentration is best described by the background concentration taken from Defra's 2018-based background maps[8] which in 2019 is predicted to be 15.1 µg/m^3. Using the information set out in Paragraph 4.11 and Figure 2 alongside the matrix in Table 4, the area surrounding the earthworks is of 'low' sensitivity to human health effects. Using the information set out in Paragraph 4.12 and Figure 4 alongside the same matrix, the area surrounding roads along which material may be tracked from the site is also of 'low' sensitivity.

[8] Defra (2023) Local Air Quality Management (LAQM) Support Website, Available: http://laqm.defra.gov.uk/.

Sensitivity of the Area to any Ecological Effects

4.15 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 or those roads along which material may be tracked, thus ecological impacts will not be considered further.

Summary of the Area Sensitivity

4.16 Table 9 summarises the sensitivity of the area around the proposed construction works.

Table 9: Summary of the Area Sensitivity

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

Risk and Significance

4.17 The dust emission magnitudes in Table 8 have been combined with the sensitivities of the area in Table 9 using the matrix in Table 6, 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 10. These risk categories have been used to determine the appropriate level of mitigation as set out in Section 5 (step 3 of the assessment procedure).

Table 10: Summary of Risk of Impacts Without Mitigation

Source	Dust Soiling	Human Health
Earthworks	Medium Risk	Low Risk
Trackout	Low Risk	Low Risk

4.18 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'.

5 Recommended Mitigation

5.1 The Site has been identified as a *Medium* Risk site during earthworks and *Low* Risk for trackout, as set out in Table 10. Comprehensive guidance has been published by IAQM**.** that describes measures that should be employed, as appropriate, to reduce the impacts, along with guidance on monitoring during demolition and construction[9]. This reflects best practice experience and has been used, together with the professional experience of the consultant who has undertaken the dust impact assessment and the findings of the assessment, to draw up a set of measures that should be incorporated into the specification for the works.

5.2 Table 11 sets out a list of best-practice measures from the IAQM guidance**.** 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 11: 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		✓
Hold regular liaison meetings with other high risk construction sites within 500 m of the site boundary, to ensure plans are co-ordinated		✓

[9] IAQM (2018) Guidance on Air Quality Monitoring in the Vicinity of Demolition and Construction Sites v1.1, Available: www.iaqm.co.uk/guidance.html.

and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes		
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		✓
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		✓
Cover, seed, or fence stockpiles to prevent wind whipping		✓
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		✓
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)		✓
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		✓
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 Earthworks		
Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable		✓
Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable		✓
Only remove the cover from small areas during work, not all at once		✓
Measures Specific to Trackout		
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	✓	
Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable)	✓	

5.3 The mitigation measures should be written into a Dust Management Plan (DMP).

5.4 The IAQM guidance is clear that, with appropriate mitigation in place, the residual effects will normally be 'not significant'. The mitigation measures set out above are based on the IAQM guidance. With these measures in place and effectively implemented the residual effects are judged to be 'not significant'.

5.5 The IAQM guidance does, however, recognise 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. During these events, short-term dust annoyance may occur, however, the scale of this would not normally be considered sufficient to change the conclusion that overall the effects will be 'not significant'.

6 Conclusions

6.1 The construction of the Proposed Development has the potential to create dust during earthworks and due to trackout. 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'.

7 Appendices

A1 Professional Experience

Martin Peirce, BSc (Hons), MSc, MIEncSci, MIAQM

Mr Peirce is an Associate Director with AQC and has some thirty years' experience in environmental modelling and assessment, most relating to air quality and carbon and greenhouse gases (GHGs). He has extensive experience in the calculation of emissions to air and compiling emission inventories, for both local air quality assessments and carbon footprinting. For air quality, he also has extensive expertise in modelling the atmospheric dispersion of pollutants for comparison against regulatory limits and for assessment of health and environmental impacts. He has prepared assessments in support of Environmental Impact Assessments (EIA), permit applications and planning applications (under both Town and Country Planning Act (TCPA) and Development Consent Order (DCO) regimes), and has acted as expert witness. He has particular experience in modelling aviation and transport sources, non-road mobile machinery, construction and industrial sources.

Dr Imogen Heard, BSc (Hons) MSc PhD

Dr Heard is an Associate of AQC with over 12 years' experience in the field of air quality. She has been involved in numerous development projects including road schemes, energy from waste facilities, urban extensions and energy centres. These have included the use of ADMS-5 and ADMS-Roads dispersion models to study the impacts of a variety of pollutants, including nitrogen dioxide, PM10 and PM2.5, and the preparation of air quality assessment reports and air quality chapters for Environmental Statements. She also has experience in undertaking construction dust risk assessments, Air Quality Neutral assessments and human health risk assessments, as well as in preparing local authority reports. Prior to joining AQC she worked as a scientist in the Atmospheric Dispersion and Air Quality area at the UK Met Office for four years, modelling the dispersion of a range of pollutants over varying spatial and temporal scales.

Dr Wale Abiye, MIENVSC MIAQM

Dr Abiye is an Assistant Consultant with AQC and joined the company in 2022. Prior to joining the company, he worked as a Research Fellow in Nigeria. He obtained his master's and PhD degrees from Obafemi Awolowo University, Ile-Ife, Nigeria. He is experienced in monitoring urban air pollution and analysing its chemical constituents, as well as using dispersion modelling to assess air quality. He is nominated to the United Nations Framework Convention on Climate Change's Rosters of Experts.