



Elysian Residences

KEW RIVERSIDE

Dust Management Plan





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CONTENTS

1	INTRODUCTION	1
2	LOCATION AND BASELINE CONTEXT	3
3	DUST RISK ASSESSMENT	5
3.1	METHODOLOGY	5
4	AIR QUALITY AND DUST MANAGEMENT PLAN	11
4.1	DUST, PM₁₀ AND NO_x EMISSIONS MITIGATION MEASURES	11
4.2	ROLES AND RESPONSIBILITIES	15
4.3	CONSTRUCTION SITE AND EQUIPMENT LAYOUT	16
4.4	TRAINING	16
4.5	COMMUNITY ENGAGEMENT AND COMPLAINTS PROCEDURE	16
4.6	MONITORING	17
4.7	ON-ROAD VEHICLE AND NRMM EMISSIONS	19
4.8	APPROVAL AND CONTINUOUS REVIEW	20
5	SUMMARY	21

TABLES

Table 2-1 – 2019 LAEI predicted concentrations	4
Table 3-1 – Potential dust emission magnitude	7
Table 3-2 – Sensitivity of the surrounding area	9
Table 3-3 – Summary dust risk table to define site specific mitigation	10
Table 4-1 – Proposed site-specific dust, PM and NO _x emissions mitigation measures	11

APPENDICES

APPENDIX A

GLOSSARY

APPENDIX B

IAQM CONSTRUCTION DUST ASSESSMENT METHODOLOGY

APPENDIX C

DUST LOG REPORT FORM

APPENDIX D

DUST COMPLAINTS FORM

APPENDIX E

NRMM MONTHLY COMPLIANCE FORM

1 INTRODUCTION

- 1.1.1. Planning permission was granted for the development at Kew Riverside, Melliss Avenue in September 2020 (reference: 18/3310/FUL). The consented development involves the demolition of existing buildings and structures, and redevelopment of the site to provide 4-6 storey specialist extra care facility (C2 use class) for the elderly with existing health conditions, comprising 88 units, communal healthcare, therapy, leisure, and social facilities (including a restaurant/bar/café and swimming pool). Also included are car and cycle parking, associated landscaping and publicly accessible amenity space with a children's play area.
- 1.1.2. In granting permission, the London Borough of Richmond upon Thames (LBRuT) set the following pre-commencement planning condition (reference U0079763):
- “Unless otherwise agreed in writing by the LPA, prior to commencement of the development hereby approved, a Dust Management Plan for the ground works, demolition and construction phases shall be submitted to and approved in writing by the Council. The development shall not be implemented other than in accordance with the approved scheme. The dust management plan shall include:*
- a. Demonstrate compliance with the guidance found in the control of dust and emissions from construction and demolition Best Practice produced by the Greater London Authority (GLA) http://static.london.gov.uk/mayor/environment/air_quality/docs/construction-dust-pg.pdf*
- b. A risk assessment of dust generation for each phase of the demolition and construction. The assessment and identified controls must include the principles of prevention, suppression and containment and follow the format detailed in the guidance above. The outcome of the assessment must be fully implemented for the duration of the construction and demolition phase of the proposed development and include dust monitoring where appropriate.*
- c. where the outcome of the risk assessment indicates that monitoring is necessary, a monitoring protocol including information on monitoring locations, frequency of data collection and how the data will be reported to the Local Planning Authority;*
- d. details of dust generating operations and the subsequent management and mitigation of dust demonstrating full best practicable means compliance and covering construction activities, materials storage, on and off-site haul routes, operational control, demolition, and exhaust emissions; and*
- e. where a breach of the dust trigger level may occur a response procedure should be detailed including measures to prevent repeat incidence.”*
- 1.1.3. Condition U0079763 was part discharged under application 18/3310/DD04 on 7th September 2023. The part discharge was applied to Phase 1 demolition works which comprised the demolition of
- Tanking structure No 1 (eastern side);
 - Tanking structure No. 2 (north-western side);
 - Mechanical/electrical housing structure; and
 - Biomethane MCC building.
- 1.1.4. This document sets out the required Dust Management Plan (DMP) for the remaining works on site. It has been prepared with regard to condition U0079763 (above) and the following best practice guidance:

- The Greater London Authority's Supplementary Planning Guidance (SPG) document 'The Control of Dust and Emissions from Construction and Demolition'¹;
- The Institute of Air Quality Management's (IAQM) document 'Guidance on the assessment of dust from demolition and construction'²; and
- The IAQM's document 'Guidance on Monitoring in the Vicinity of Demolition and Construction Sites'³.

1.1.5. Information regarding construction traffic routing has been determined with reference to the Construction Logistics Plan issued by Clipfine Ltd⁴.

1.1.6. A glossary of terms used in this report is provided in **Appendix A**.

¹ The Mayor of London (2014) *The Control of Dust and Emissions During Construction and Demolition: Supplementary Planning Guidance* [online]. Available at: <https://www.london.gov.uk/what-we-do/planning/implementing-london-plan/london-plan-guidance-and-spgs/control-dust-and> [Accessed June 2024].

² IAQM (2024) *Guidance on the assessment of dust from demolition and construction Version 2.2* [online]. Available at: <https://iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf> [Accessed June 2024].

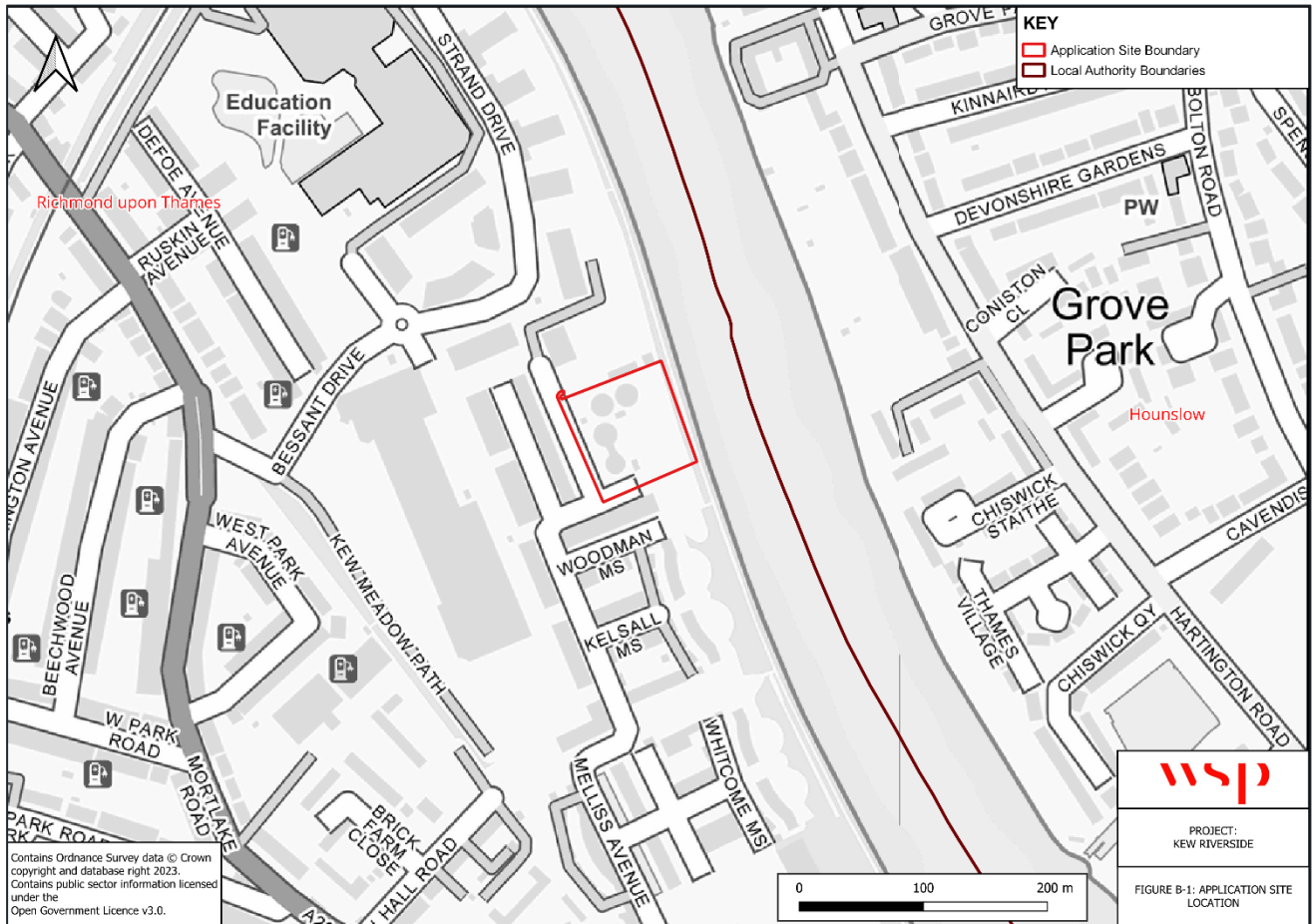
³ IAQM (2018) *Guidance on Monitoring in the Vicinity of Demolition and Construction Sites Version 1.1* [online]. Available at: https://iaqm.co.uk/text/guidance/guidance_monitoring_dust_2018.pdf [Accessed June 2024].

⁴ Clipfine (2024) *Kew Riverside Construction Logistics Plan*.

2 LOCATION AND BASELINE CONTEXT

2.1.1. The site is shown in **Figure 2-1**. It is on Melliss Avenue with residential properties to the north, west and south, and the River Thames to the east. The site was formerly the Thames Water Biothane treatment plant associated with Stag Brewery.

Figure 2-1 - Site Location



2.1.2. The site is within London’s Ultra-Low Emission Zone⁵ and the Richmond Air Quality Management Area (AQMA)⁶. The AQMA was declared in December 2000 due to exceedances of the air quality

⁵ Transport for London (2022) *ULEZ: Where and when* [online]. Available at: <https://tfl.gov.uk/modes/driving/ultra-low-emission-zone/ulez-where-and-when?intcmp=52227#on-this-page-1> [Accessed June 2024].

⁶ Defra (2022) *AQMAs Declared by London Borough of Richmond* [online]. Available at: [Local Authority Details - Defra, UK](#) [Accessed June 2024].



objectives for annual mean nitrogen dioxide (NO₂) and PM₁₀ concentrations, and 24-hour mean PM₁₀ concentrations⁷.

BASELINE AIR QUALITY

- 2.1.3. The London Atmospheric Emissions Inventory (LAEI) model annual mean concentrations for NO₂, PM₁₀ and PM_{2.5} for the area surrounding the site for 2019.
- 2.1.4. **Table 2-1** shows the maximum LAEI predicted NO₂, PM₁₀ and PM_{2.5} concentrations for 2019 for the area encompassing the site. The annual mean concentrations are well below the relevant objectives (given in the table).

Table 2-1 – 2019 LAEI predicted concentrations

Grid Square (centred on OS Grid Reference, m)	Annual mean concentration (µg/m ³)		
	NO ₂	PM ₁₀	PM _{2.5}
519500, 176500	26.6	16.1	10.5
Air quality objective	40	40	20

⁷ The air quality objectives are given in The Air Quality (England) Regulations 2000 (as amended in 2002) as 40µg/m³ for annual mean concentrations of NO₂ and PM₁₀, and 50µg/m³ for 24-hour mean PM₁₀ concentrations not to be exceeded more than 35 times a year.

3 DUST RISK ASSESSMENT

3.1 METHODOLOGY

- 3.1.1. Dust comprises particles typically in the size range 1-75 micrometres (μm) in aerodynamic diameter and is created through the action of crushing and abrasive forces on materials. The larger dust particles fall out of the atmosphere quickly after initial release and therefore tend to be deposited near the source of emission. The dust generated by construction is unlikely to cause long-term or widespread changes to local air quality; however, its deposition on property and cars can cause 'soiling' and discolouration. This may result in complaints of nuisance through amenity loss or perceived damage caused, which is usually temporary.
- 3.1.2. The smaller particles of dust (less than $10\mu\text{m}$ in aerodynamic diameter) are known as particulate matter (PM_{10}) and represent only a small proportion of total dust released; this includes a finer fraction, known as $\text{PM}_{2.5}$ (with an aerodynamic diameter less than $2.5\mu\text{m}$). As these particles are at the smaller end of the size range of dust particles, they remain suspended in the atmosphere for a longer period of time than the larger dust particles. They can therefore be transported by wind over a wider area. PM_{10} and $\text{PM}_{2.5}$ are small enough to be drawn into the lungs during breathing, which in sensitive members of the public could have a potential impact on health.
- 3.1.3. An assessment of the likely significant impacts on local air quality due to the generation and dispersion of dust, PM_{10} and $\text{PM}_{2.5}$ during the construction phase has been undertaken with reference to the GLA's SPG; the available information for this phase of the development provided by the client and project team; and professional judgement.
- 3.1.4. As previously stated in Section 1, the GLA's SPG requires a dust risk assessment to be undertaken following the methodology published in the IAQM Construction Dust Guidance, which assesses the risk of potential dust, PM_{10} and $\text{PM}_{2.5}$ impacts from the following four sources: demolition; earthworks; general construction activities and trackout. It takes into account the nature and scale of the activities undertaken for each source and the sensitivity of the area to an increase in dust, PM_{10} and $\text{PM}_{2.5}$ levels to assign a level of risk. Risks are described in terms of there being a low, medium or high risk of dust impacts. Once the level of risk has been ascertained, then site specific mitigation proportionate to the level of risk is identified, and the significance of residual effects determined. A summary of the IAQM Construction Dust Guidance assessment methodology is provided in **Appendix B**.

SELECTION OF SENSITIVE RECEPTORS

- 3.1.5. Sensitive locations are places where the public or sensitive ecological habitats may be exposed to pollutants resulting from activities associated with the consented development. These will include locations sensitive to an increase in dust deposition, PM_{10} and $\text{PM}_{2.5}$ exposure as a result of on-site construction activities, locations sensitive to exposure to gaseous pollutants emitted from the exhausts of construction and operational traffic associated with the consented development.
- 3.1.6. According to the IAQM Construction Dust Guidance an assessment is undertaken where there are:
- 'human receptors' within 250m of the site boundary, or
 - 'human receptors' within 50m of the route(s) used by construction vehicles on the public highway, up to 250m from the site entrance(s); and/or
 - 'ecological receptors' within 50m of the site boundary, or

- 'ecological receptors within 50m of the route(s) used by construction vehicles on the public highway, up to 250m from the site entrance(s).

3.1.7. It is within these distances that the impacts of dust soiling and increased particulate matter in the ambient air will have the greatest impact on local air quality at sensitive receptors.

3.1.8. A review of the Multi-Agency Graphical Information for the Countryside (MAGIC) website⁸ showed that there are no designated ecological receptors within 50m of the site boundary. Neither are there any designated ecological receptors within 50m of roads used for construction traffic. Ecological receptors are therefore not considered further within this assessment.

ASSESSMENT OF CONSTRUCTION IMPACTS

DUST AND PM₁₀ ARISING FROM ON-SITE ACTIVITIES

3.1.9. Construction activities that have the potential to generate and/or re-suspend dust, PM₁₀ and PM_{2.5} include:

- Site clearance and preparation including demolition activities;
- Preparation of temporary access/egress to the site;
- Earthworks;
- Materials handling, storage, stockpiling, spillage and disposal;
- Movement of vehicles and construction traffic within the site (including excavators and dumper trucks);
- Exhaust emissions from site plant;
- Construction of buildings and areas of hardstanding;
- Internal and external finishing and refurbishment; and
- Site landscaping after completion.

3.1.10. For some potential release sources, for example exposed soil produced from significant earthwork activities, in the absence of dust control mitigation measures dust generation has the potential to occur 24 hours per day over the period during which such activities are to take place. The majority of the releases are likely to occur during the 'working week' which will be between the hours of 08:00 and 18:00 on weekdays and between 08:00 and 13:00 on Saturdays. No works will be carried out on Sundays and Bank Holidays. Where works are required to be undertaken outside of these hours (excluding emergencies), these will be subject to prior agreement with the LBRuT Environmental Health Department and Estate Residents Association.

3.1.11. It is expected that the construction period (including demolition) of the development will commence in September 2024 and will be completed by May 2027.

ASSESSMENT OF POTENTIAL DUST EMISSION MAGNITUDE

3.1.12. The IAQM Construction Dust Guidance assessment methodology has been used to determine the potential dust emission magnitude for the following four different dust, PM₁₀ and PM_{2.5} sources:

⁸ Defra (2022) *MAGIC* [online]. Available at: <https://magic.defra.gov.uk/MagicMap.aspx> [Accessed June 2024].

demolition; earthworks; construction; and trackout. The findings of the assessment are presented below.

Demolition

3.1.13. The total volume of buildings to be demolished on site is 1980m³, with potentially dusty construction material, e.g., concrete. Demolition activities will occur at 10-20m above ground level and existing structures and bases are to be crushed onsite. Therefore, the potential dust emission magnitude is **large** for demolition activities.

Earthworks

3.1.14. The total area of the site is 6,700m², the soil type is gravelly sand consisting of flint, brick, concrete and glass. It is also estimated that 5 to 10 heavy earth moving vehicles will be active at any one time and formation of bunds will be less than 4m. Therefore, the potential dust emission magnitude is considered to be **medium** for earthwork activities.

Construction

3.1.15. The total volume of buildings to be constructed on the site will be 50,000m³ with potentially dusty construction materials being used. There will be no on-site concrete batching and sand blasting activities. Therefore, the potential dust emission magnitude is **medium** for construction activities.

Trackout

3.1.16. It is understood that there will be 10 to 50 heavy-duty vehicles (HDV) outward movements in any one day travelling on potentially dusty surface materials. The length of unpaved roads within site will be less than 50m. Therefore, the potential dust emission magnitude is considered to be **medium** for trackout.

3.1.17. **Table 3-1** provides a summary of the potential dust emission magnitude determined for each construction activity considered.

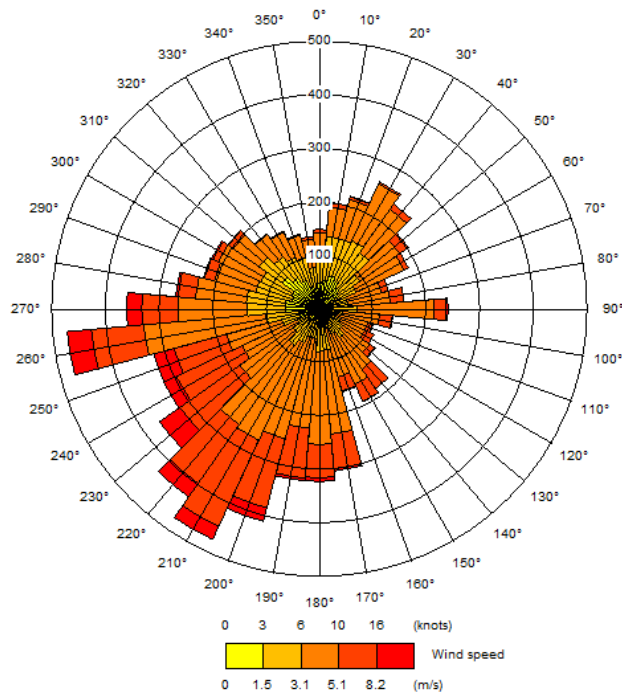
Table 3-1 – Potential dust emission magnitude

Activity	Dust Emission Magnitude
Demolition	Large
Earthworks	Medium
Construction activities	Medium
Trackout	Medium

ASSESSMENT OF THE SENSITIVITY OF THE STUDY AREA

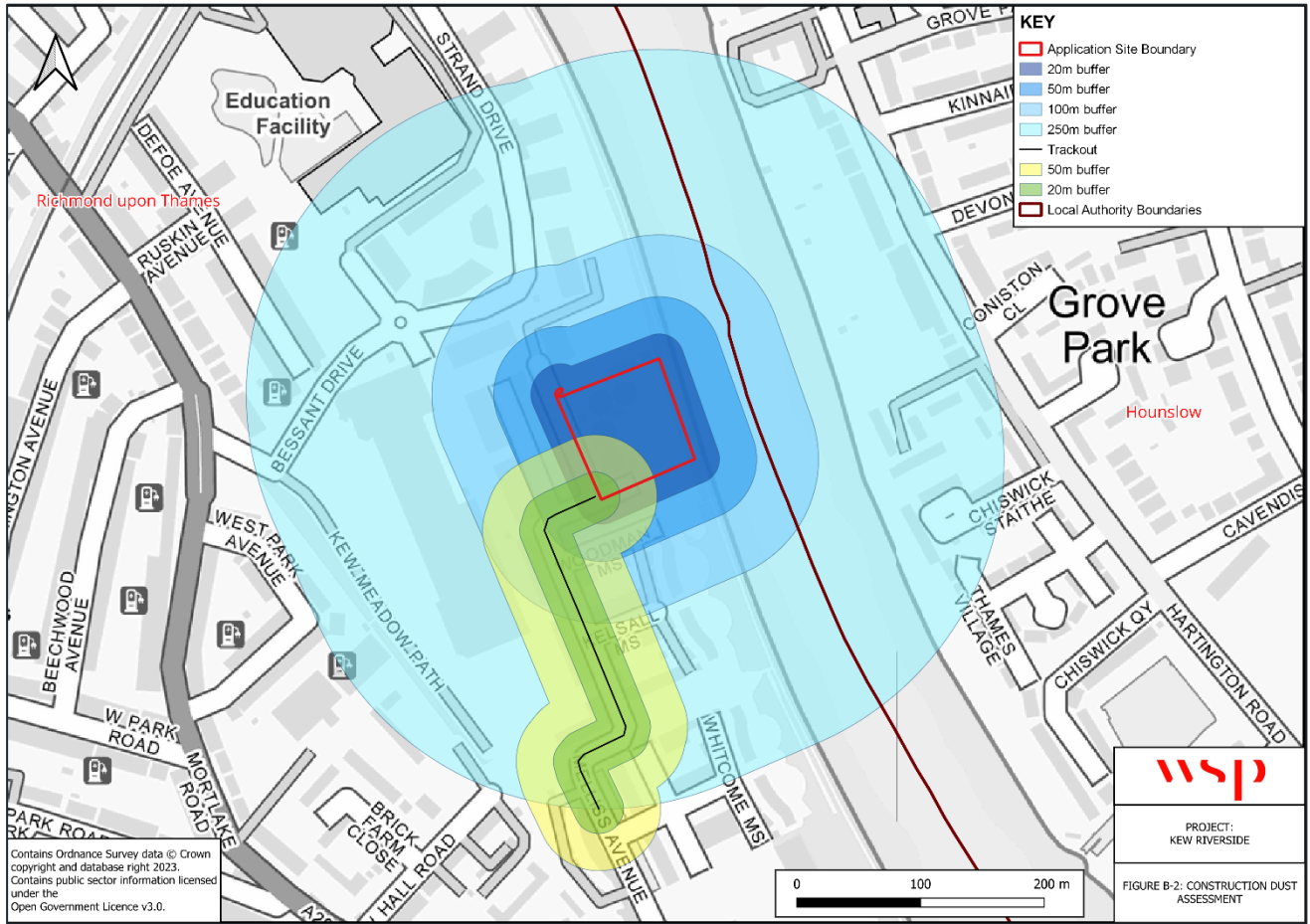
3.1.18. A wind rose generated using 2022 meteorological data obtained from the Heathrow Airport meteorological observation station is provided in **Figure 3-1**. This shows that the prevailing wind direction is from the southwest, with a smaller proportion of winds from the east and northwest. Therefore, receptors located to the northeast, west and southeast of the site are more likely to be affected by dust and particulate matter emitted and re-suspended during the construction stage of the consented development.

Figure 3-1 – Wind rose from Heathrow airport (2022)



3.1.19. Under low wind speed conditions, it is likely that the majority of dust would be deposited in the area immediately surrounding the source. **Figure 3-2** shows that there are residential properties to the south, north and west of the site boundary along Mellis Avenue Road and Strand Drive Road, beyond which is Richmond medical centre. These are all ‘high’ sensitivity receptors. There are more than 10 of these high sensitivity receptors within 20m of the site boundary. The eastern site boundary is adjacent to River Thames. Further to the east are residential properties on Hartington Road.

Figure 3-2 – Construction dust assessment



- 3.1.20. As given in **Table 2-1**, the background PM₁₀ concentration for 2024 is 15.9µg/m³. Therefore, the sensitivity of the surrounding area to human health impacts and dust soiling is medium and high, respectively.
- 3.1.21. According to the Construction Logistics Plan issued by Clipfine Ltd, construction vehicles are expected to enter and exit the site via Mellis Avenue, following Townmead Road and then A205 Mortlake Road.
- 3.1.22. Within 50m of the route that construction vehicles routes are residential properties along Mellis Avenue Road. Consequently, the sensitivity of the area to human health impacts and dust soiling specifically from trackout is low and high, respectively.
- 3.1.23. Taking the above into account and following the IAQM Construction Dust Guidance assessment methodology, the sensitivity of the area to changes in dust, PM₁₀ and PM_{2.5} concentrations has been derived for each of the construction activities considered. The results are shown in **Table 3-2**.

Table 3-2 – Sensitivity of the surrounding area

Potential Impact	Sensitivity of the surrounding area			
	Demolition	Earthworks	Construction	Trackout
Dust Soiling	High	High	High	High

Potential Impact	Sensitivity of the surrounding area			
	Demolition	Earthworks	Construction	Trackout
Human Health	Low	Low	Low	Low

RISK OF IMPACTS

- 3.1.24. The predicted dust emission magnitude has been combined with the sensitivity of the area to determine the risk of impacts during the construction stage, prior to mitigation.
- 3.1.25. **Table 3-3** below provides a summary of the risk of dust impacts for the consented development. The risk category identified for each construction activity has been used to determine the level of mitigation required.

Table 3-3 – Summary dust risk table to define site specific mitigation

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

- 3.1.26. In accordance with the GLA's SPG, the overall dust risk rating of the development has been classified as **high risk** for demolition **medium risk** for construction and earthworks.

4 AIR QUALITY AND DUST MANAGEMENT PLAN

4.1 DUST, PM₁₀ AND NO_x EMISSIONS MITIGATION MEASURES

- 4.1.1. Best practice mitigation measures are set out in the GLA's SPG for controlling dust, PM₁₀ and NO_x emissions from construction sites.
- 4.1.2. Commensurate with the dust risk assessment presented in Section 2, the proposed mitigation measures set out in **Table 4-1** consider both the high risk of dust soiling and affects to human health posed by the site, if unmitigated. Specific details on the roles and responsibilities of site personnel, the site layout and training and are included in sections 4.2 to 4.4 of this report.

Table 4-1 – Proposed site-specific dust, PM and NO_x emissions mitigation measures

Mitigation measure	Implemented on site
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.	✓
Develop and implement a DMP (this document).	✓
Site Management	
Record and respond to 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 250m of the site boundary, to ensure plans are co-ordinated 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 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.	✓

Mitigation measure	Implemented on site
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.	✓
Agree dust monitoring locations with the Local Authority (see Section 4.6). Where possible commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.	✓
Preparing and maintaining the site	
Plan site layout: machinery and dust causing activities should be located away from receptors.	✓
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 the potential to produce dust from site as soon as possible, unless being reused on Site.	✓
Cover, seed, or fence stockpiles to prevent wind whipping.	✓
Operating vehicle/machinery and sustainable travel	
Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone and the London NRMM standards, where applicable.	✓
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.	✓
Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate).	✓

Mitigation measure	Implemented on site
Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.	✓
Implement a Travel Plan that supports and encourages sustainable 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 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.	✓
Waste Management	
Avoid bonfires and burning of waste materials.	✓
Reuse and recycle waste to reduce dust from waste materials	✓
Measures specific to demolition	
Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).	✓
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.	✓
Ensure effective water suppression is used during demolition operations.	✓
Avoid explosive blasting, using appropriate manual or mechanical alternatives.	✓

Mitigation measure	Implemented on site
Bag and remove any biological debris or damp down such material before demolition	✓
Measures specific to earthworks	
Earthworks and exposed areas/soil stockpiles will be covered or fenced to prevent wind whipping and will be re-vegetated to stabilise surfaces, as soon as practicable.	✓
Hessian, mulches or tackifiers will be used where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.	✓
Secure covers will only be removed in small areas during work and not all at once.	✓
Measure 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.	✓
Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.	✓
For smaller supplies of fine powder materials, ensure bags are sealed after use and stored appropriately to prevent dust.	✓
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 the Site are securely covered to prevent escape of materials during transport. Secure covers will only be removed in small areas during work and not all at once.	✓
Inspect haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.	✓
Record all inspections of haul routes and any subsequent action in a site log book.	✓
Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.	✓

Mitigation measure	Implemented on site
Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).	✓
Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.	✓
Access gates to be located at least 10 m from receptors where possible.	✓
Apply dust suppressants to locations where a large volume of vehicles enters and exit the construction site.	✓

4.2 ROLES AND RESPONSIBILITIES

- 4.2.1. The DMP is a living document, and the monitoring procedures, responsibilities and compliance actions will be updated as appropriate. It is the responsibility of the Site Manager, or their designated deputy, to be aware of its contents, as well as to provide relevant training to staff and ensure that procedures are being implemented to achieve compliance with this DMP. All staff will therefore be responsible for minimising any dust emissions from the site during the demolition and construction period.
- 4.2.2. During the hours of site operation, the site will be supervised by at least one member of staff who is suitably trained and conversant with the requirements of the DMP with respect to:
- Operational controls and environmental monitoring;
 - Site maintenance (site inspection checklist);
 - Record keeping; and
 - Emergency action plans.
- 4.2.3. The Principal Contractor will have overall responsibility for air quality during the construction and demolition period and may delegate responsibilities to others.
- 4.2.4. The appropriate resources will be supplied to cover the requirements of this DMP and ensure that these are communicated effectively and acted upon in an appropriate manner. Key roles and responsibilities relating to air quality are detailed in **Table 4-2**.

Table 4-2 – Key roles and responsibilities relating to air quality

Role	Responsibilities
Site Manager	Ensure that the mitigation and monitoring requirements laid out in the DMP are carried out during works on site.
	Ensure that staff are aware of the requirements of the DMP and have access to the document. Regular training of staff should be implemented.
	Undertake and record dust inspections of the site as required by the DMP.
	Ensure that site documentation (including method statements and risk assessments) includes dust mitigation.

Role	Responsibilities
	Act on complaints and dust alerts as detailed in the DMP.
	Maintain up-to-date site log of air quality events and complaints.
	Investigate the cause of air quality events and apply additional mitigation as required.
	Act as the key point of contact for queries and complaints regarding air quality emissions from site.
All site personnel	Carry out the works in line with the DMP requirements.
	Report observations of dust events or deviations from the DMP procedures.
	Attend environmental management training and toolbox talks.

4.3 CONSTRUCTION SITE AND EQUIPMENT LAYOUT

- 4.3.1. The site layout will ensure that the dust generating activities and machinery will be located away as far as practically possible from off-site sensitive receptors such as schools, residential dwellings, care homes and medical facilities.

4.4 TRAINING

- 4.4.1. Procedures and practices relating to air quality and dust control will be incorporated into the site and employee inductions. Toolbox talks will be delivered to all site operatives weekly to ensure that all aspects of the DMP are understood and put into practice.

4.5 COMMUNITY ENGAGEMENT AND COMPLAINTS PROCEDURE

ENGAGEMENT WITH THE COMMUNITY

- 4.5.1. As outlined above, best practice mitigation measures will be implemented to minimise the impacts associated with demolition and construction and maintain a good relationship with local residents, neighbours and other external stakeholders.
- 4.5.2. In accordance with the Construction Logistics Plan, the site will be registered with the Considerate Constructors Scheme. Therefore, the responsible person will ensure that everyone affected by the construction activities will be advised prior to the commencement of the works. Neighbours will be informed of site activities that could give rise to dust and particulate matter.
- 4.5.3. Liaison with any local residents will be completed by and co-ordinated through the Site Manager.

COMPLAINTS PROCEDURE

- 4.5.4. In the event that any complaints are received, either from members of the public directly or via the regulating authority, an investigation will be started on the day of receipt.
- 4.5.5. The complaints procedure involves the following tasks:
- Undertake a visual monitoring inspection and identify the activities that were being carried out immediately prior to receipt of the complaint, or the period identified in the complaint.

- Review the control and mitigation measures in place and determine that they are functioning as they should.
- Identify further actions that can be taken to reduce the emissions of dust resulting from the activity and update the DMP.
- Report the findings to the site team and regulating authority and implement any appropriate further mitigation measures.
- Contact the complainant and advise them of the mitigation response. This may include an in person visit to discuss the issue and identify any other ongoing issues.
- Record the details of the complaint, including the complainant's details, action taken and meteorological conditions in the site logbook.

4.5.6. All details will be retained for the duration of the works and will be presented to LBRuT upon request.

4.5.7. The complaints reporting process will be the responsibility of the Site Manager. This will include collating information about any complaints using the dust complaints form in , conducting investigations and monthly reporting to the Environmental Health Officer (EHO) at LBRuT.

4.5.8. A complaints register will be maintained on-site and will include the complainant's personal details (name, address, telephone number) and the date the complaint was registered.

4.5.9. The register will include the following information on the complaint:

- Who was responsible for the investigation;
- Date and time of the investigation;
- The meteorological conditions; and
- The findings of the investigation and any remedial action.

4.6 MONITORING

4.6.1. The dust risk assessment in Section 2 identifies medium to high risks in terms of dust soiling and low to medium risks in terms of human health. To ensure that mitigation measures are effective throughout demolition and construction periods the Principal Contractor will undertake monitoring. This is to comprise daily visual inspections and continuous monitoring of PM₁₀ concentrations.

DAILY VISUAL INSPECTIONS

4.6.2. Daily visual inspections are to be carried out by the Principal Contractor. A log of all visual inspections is to be kept using the proforma given in **Appendix C** (or similar). This activity is to include inspection of:

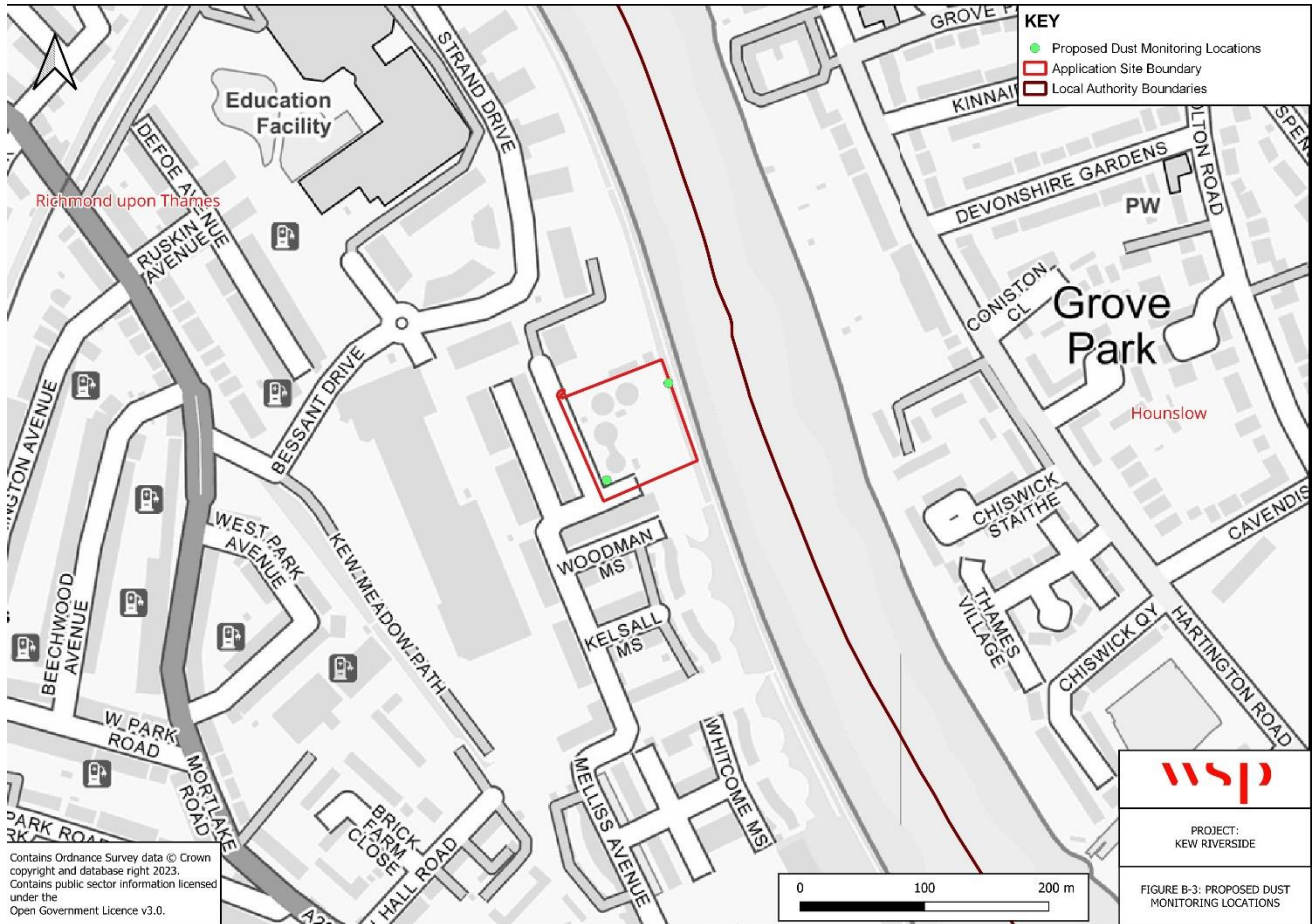
- Paved areas within the site and in the vicinity of the site access to ensure that these are free of dirt and debris.
- Ongoing activities and dust control measures to ensure that measures are limiting visual dust emissions.
- Exposed surfaces around the site (e.g., cars, windowsills etc) for evidence of dust soiling that could attributed to site activities.

CONTINUOUS MONITORING

4.6.3. Two monitoring locations are recommended. It is understood that concrete crushing activities will take place on the eastern side of the site. The predominant wind direction is south-westerly.

Therefore, monitoring locations on the northeastern and southwestern boundary is recommended to capture upwind and downwind locations of these activities. The proposed locations are illustrated in **Figure 4-1**. The locations of the monitors should be reviewed throughout the demolition and construction phase to reflect the changing nature of site activities, also taking into account the availability of power supply.

Figure 4-1 – Proposed dust monitoring locations



4.6.4. Monitoring using real-time automatic monitors is recommended in Appendix 8 of the GLA’s SPG and will be undertaken using an instrument with MCERTS accreditation for indicative PM₁₀ measurements.

4.6.5. Continuous real-time monitoring will be undertaken for the duration of the project and the data are to be accessible to the Site Manager. E-mail/SMS text alerts are to be sent to the Site Manager when specified thresholds, outlined below, are exceeded.

Warning and action levels

4.6.6. The IAQM Monitoring Guidance recommends an Action Level of 190µg/m³ based on a 1-hour mean PM₁₀ concentration. A lower Warning Level of 150µg/m³ (15-minute mean) is to be set to alert the Site Manager of levels approaching the Action Level. In the event of the Warning Level being exceeded, the Site Manager is to review on-going activities to identify the source and ensure

appropriate remedial measures are implemented. Such measures include pausing work, dampening down surfaces and reducing emissions. If the Action Level of $190\mu\text{g}/\text{m}^3$ is exceeded, the dust generating activities are to cease until PM_{10} concentrations return to below the Action Level.

- 4.6.7. Exceedances of the Warning and Action Levels should be considered in relation to the location of the exceedance and proximity to sensitive receptors.
- 4.6.8. On all occasions where the Action Level is exceeded, the Site Manager is to record all details of the cause and remedial measures taken in the site dust log (**Appendix C**).

REPORTING

- 4.6.9. Monitoring data are to be collated on a monthly basis and a short summary report is to be produced. The monthly reports are to include the dust monitoring results and any exceedances of Warning and Action levels, and any remedial action.
- 4.6.10. Electronic copies of the monthly reports will be issued to the EHO at the LBRuT.

4.7 ON-ROAD VEHICLE AND NRMM EMISSIONS

ON-ROAD VEHICLES

- 4.7.1. Section 2 of this reports states that the site is located within London's ULEZ. Consequently, all on-road vehicles will comply with the ULEZ vehicle emission standards (e.g. Petrol/Diesel Euro 6 and Euro VI) as a minimum.
- 4.7.2. The use of ultra-low emission vehicles, e.g., electric, hybrid (electric-petrol) site vehicles is encouraged. The use of suppliers that can provide electric or hybrid vehicles where practicable is encouraged.
- 4.7.3. Wherever possible, construction site workers will use sustainable means of travel such as public transport, walking and car-sharing. Information on public transport access to site will be provided in the form of noticeboards and toolbox talks. Car-sharing for contractors will be encouraged on-site.

NRMM

- 4.7.4. All NRMM will need to comply with Stage IV NO_x and PM_{10} Emission Standards (or the latest standard if the GLA requirements change) as stated in The Non-Road Mobile Machinery (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018⁹, and its subsequent amendments, as a minimum if equal to or over 37kW.
- 4.7.5. Where compliance with Stage IV requirements is not achievable or practical, an exemption should be sought from the GLA prior to arrival of the equipment on site and the details recorded in the monthly NRMM compliance form (see **Appendix E**).

⁹ The National Archives (2018) *The Non-Road Mobile Machinery (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018 – Statutory Instrument No. 764* [online]. Available at: <https://www.legislation.gov.uk/uksi/2018/764/contents/made> [Accessed November 2022].

- 4.7.6. Use of NRMM will be minimised as much as possible and electric or battery-powered alternatives will be used as a preference. If NRMM under 37kW is to be used, use of the equipment will be minimised and kept as far away from sensitive receptors as is practicable.
- 4.7.7. All NRMM for engine sizes of 37kW to 560kW inclusive for the works will be registered on the NRMM register prior to the commencement of works.
- 4.7.8. All relevant machinery emissions information and documentation will be stored and summarised within an electronic filing system. The project will record the plant details on a spreadsheet, or similar, and the NRMM online register (<https://www.london.gov.uk/what-we-do/environment/pollution-and-air-quality/non-road-mobile-machinery-register/login>) will be completed and maintained by the project administrative support and overseen by the Site Manager. The project team will co-operate with local authority inspections and provide information as required.

4.8 APPROVAL AND CONTINUOUS REVIEW

- 4.8.1. Once submitted and approved by the EHO at LBRuT, the details will be fully implemented, retained and maintained during the entire construction stage of the development.
- 4.8.2. The continuing effectiveness of this DMP is to be reviewed by the Principal Contractor in consultation with site management every six months from initial implementation. Reviews will consider the compliance records, complaints history, monitoring records and the introduction of new sensitive receptors on neighbouring land.
- 4.8.3. Review of the DMP is also to be undertaken by the Principal Contractor in the event of continued exceedances of the dust risk criteria after mitigation measures have been established. The plan will be amended as necessary, including any changes to the monitoring methods and control measures.

5 SUMMARY

- 5.1.1. This DMP was produced to discharge pre-commencement planning condition U0079763, relating to the consented development at Kew Riverside, Melliss Avenue.
- 5.1.2. A qualitative assessment of the potential impacts of construction dust emissions on local air quality was undertaken using the IAQM Construction Dust Guidance methodology. This identified that there is a high risk of impacts on local air quality due to demolition activities and medium risk for construction activities. However, through good site practice and the implementation of suitable mitigation measure, the effect of dust and PM releases would be significantly reduced.
- 5.1.3. This DMP provides a strategy to minimise the generation of dust and particulate matter and to control their release during the construction period. The document includes:
- A description of the site and the surrounding area;
 - An assessment of the risks associated with dust and PM emitted due to demolition and construction activities;
 - Site-specific mitigation measures and a procedure for their implementation;
 - The roles and responsibilities of construction personnel;
 - Construction site and equipment layout;
 - Training;
 - The community engagement plan and complaints procedure for which standard reporting templates are provided;
 - A dust monitoring programme; and
 - Requirements for on-road vehicles and NRMM.
- 5.1.4. The DMP is a living, working document. It will be available to all on-site personnel with the responsibility for managing air quality. It will be reviewed every six months following its implementation and also following any incidents on-site, changes in site operations, or if any releases of fugitive dust occur over a prolonged period, which require a change to any part of the DMP.
- 5.1.5. Updates will be agreed between the Project Manager, Site Manager and the EHO from the LBRuT.

Appendix A

GLOSSARY



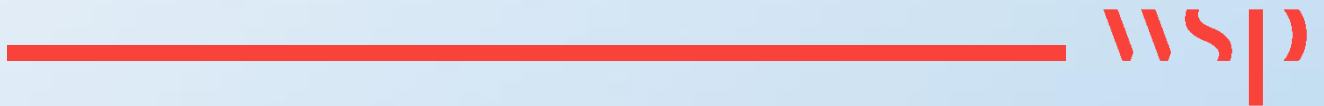
Term	Definition
Air quality objective	Policy target generally expressed as a maximum ambient concentration to be achieved, either without exception or with a permitted number of exceedances within a specific timescale (see also air quality standard).
Ambient air	Outdoor air in the troposphere, excluding workplace air.
Annual mean	The average (mean) of the concentrations measured for each pollutant for one year.
AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
AQS	Air Quality Strategy
CLP	Construction Logistics Plan
Defra	Department for Environment, Food and Rural Affairs
DMP	Dust Management Plan
Dust	Dust comprises particles typically in the size range 1-75 micrometres (μm) in aerodynamic diameter and is created through the action of crushing and abrasive forces on materials.
Exceedance	A period of time where the concentration of a pollutant is greater than the appropriate air quality standard.
GLA	Greater London Authority
HDV	Heavy-duty vehicle
IAQM	Institute of Air Quality Management
LBRuT	London Borough of Richmond upon Thames
MAGIC	Multi-Agency Geographical Information for the Countryside
NO ₂	Nitrogen dioxide
NO _x	Nitrogen oxides
NRMM	Non-Road Mobile Machinery
PM ₁₀	Particulate matter with an aerodynamic diameter of less than 10 micrometres
PM _{2.5}	Particulate matter with an aerodynamic diameter of less than 2.5 micrometres
SPG	Supplementary Planning Guidance



Term	Definition
Trackout	The transport of dust and dirt from the construction / demolition site onto the public road network, where it may be deposited and then re-suspended by vehicles using the network. This arises when heavy duty vehicles (HDVs) leave the construction / demolition site with dusty materials, which may then spill onto the road, and/or when HDVs transfer dust and dirt onto the road having travelled over muddy ground on site.
$\mu\text{g}/\text{m}^3$	Micrograms per cubic metre. A measure of concentration in terms of mass per unit volume. A concentration of $1\mu\text{g}/\text{m}^3$ means that one cubic metre of air contains one microgram (millionth of a gram) of pollutant.

Appendix B

IAQM CONSTRUCTION DUST ASSESSMENT METHODOLOGY





Step 1 - Screening the need for a Detailed Assessment

An assessment will normally be required where there are:

- ‘Human receptors’ within 250m of the site boundary; or within 50m of the route(s) used by construction vehicles on the public highway, up to 250m from the site entrance(s); and/or
- ‘Ecological receptors’ within 50m of the site boundary; or within 50m of the route(s) used by construction vehicles on the public highway, up to 250m from the site entrance(s).

Where the need for a more detailed assessment is screened out, it can be concluded that the level of risk is “negligible”.

Step 2 - Define the Potential Dust Emission Magnitude

The following are examples of how the potential dust emission magnitude for different activities can be defined; it should be noted that not all the criteria need to be met for a particular class. Other criteria may be used if justified in the assessment.

Table 2A: Examples of Human Receptor Sensitivity to Construction Stage Impacts

Dust Emission Magnitude	Activity
Large	Demolition >75,000m ³ building demolished, dusty material (e.g. concrete), on-site crushing/screening, demolition >12m above ground level
	Earthworks >110,000m ² site area, dusty soil type (e.g. clay), >10 earth moving vehicles active simultaneously, >8m high bunds formed.
	Construction >75,000m ³ building volume, on site concrete batching, sandblasting
	Trackout >50 HDVs out / day, dusty surface material (e.g. clay), >100m unpaved roads
Medium	Demolition 12,000 - 75,000m ³ building demolished, dusty material (e.g. concrete) 6-12m above ground level
	Earthworks 18,000 - 110,000m ² site area, moderately dusty soil (e.g. silt), 5-10 earth moving vehicles active simultaneously, 3m - 6m high bunds.
	Construction 12,000 - 75,000m ³ building volume, dusty material e.g. concrete, on site concrete batching
	Trackout

Dust Emission Magnitude	Activity
	20 - 50 HDVs out / day, moderately dusty surface material (e.g. clay), 50 -100m unpaved roads
Small	Demolition <12,000m ³ building demolished, non-dusty material (e.g. metal cladding), <6m above ground level, work during wetter months
	Earthworks <18,000m ² site area, soil with large grain size (e.g. sand), <5 earth moving vehicles active simultaneously, <3m high bunds.
	Construction <12,000m ³ , non-dusty material (e.g. metal cladding or timber)
	Trackout <20 HDVs out / day, non-dusty soil, < 50m unpaved roads

Step 2b - Define the Sensitivity of the Area

The tables below present the IAQM assessment methodology to determine the sensitivity of the area to dust soiling, human health and ecological impacts respectively. The IAQM Construction Dust Guidance provides guidance to allow the sensitivity of individual receptors to dust soiling and health effects to assist in the assessment of the overall sensitivity of the study area.

Table 2Ba: Sensitivity of the Area to Dust Soiling Effects

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 2Bb: Sensitivity of the Area to Human Health Impacts

Receptor Sensitivity	Annual Mean PM ₁₀ Concentration (µg/m ³)	Number of Receptors	Distance from the Source (m)			
			<20	<50	<100	<250
High	>32	>100	High	High	High	Medium
		10-100	High	High	Medium	Low
		1-10	High	Medium	Low	Low
	28-32	>100	High	High	Medium	Low
		10-100	High	Medium	Low	Low
		1-10	High	Medium	Low	Low
	24-28	>100	High	Medium	Low	Low
		10-100	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	<24	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Medium	>32	>10	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	28-32	>10	Medium	Low	Low	Low
		1-10	Low	Low	Low	Low
	24-28	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
	<24	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low

Table 2Bc: Sensitivity of the Area to Ecological Impacts

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

STEP 2C - Define the Risk of Impacts

The dust emissions magnitude determined at Step 2A should be combined with the sensitivity of the area determined at Step 2B to determine the risk of impacts without mitigation applied. For those cases where the risk category is 'negligible' no mitigation measures beyond those required by legislation will be required.

Table 2C: Risk of Dust Impacts

Sensitivity of surrounding 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 and 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

STEP 3 - Site Specific Mitigation

- 5.1.6. Having determined the risk categories for each of the four activities it is possible to determine the site-specific measures to be adopted. These measures will be related to whether the site is



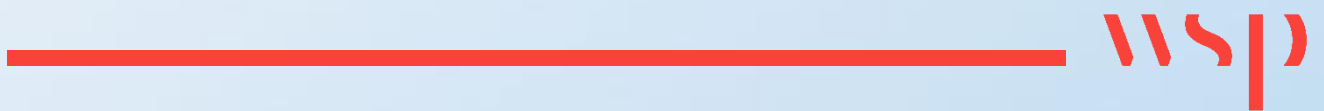
considered to be a low, medium or high-risk site. The IAQM Construction Dust Guidance details the mitigation measures required for high, medium and low risk sites as determined in Step 2C.

Step 4 – Determine Significant Effects

Once the risk of dust impacts has been determined in Step 2C and the appropriate dust mitigation measures identified in Step 3, the final step is to determine whether there are significant effects arising from the construction stage. For almost all construction activities, the application of effective mitigation should prevent any significant effects occurring to sensitive receptors and therefore the residual effect will normally be negligible.

Appendix C

DUST LOG REPORT FORM



Dust Log					
Date Site Name	Weather	Dry		Wet	
	Wind Direction (from)	N	S	E	W
		NE	NW	SE	SW
	Wind Speed	Calm	Low	Moderate	High
Daily Site Activities					
<p><i>This section should outline the planned daily activities on the site for the day.</i></p>					
Incidents/Complaints/Alerts					
<p><i>Record details of the incident/complaint/alert, to whom and how it was reported and what time. What was the cause of the incident/complaint/alert and where did it take place? Add detail to Dust Complaint Form.</i></p>					
Action Undertaken					
<p><i>Who undertook the site inspection, at what time and was the elevated dust due to site activities or off-site activities? What was done to minimise the dust levels and was this effective?</i></p>					

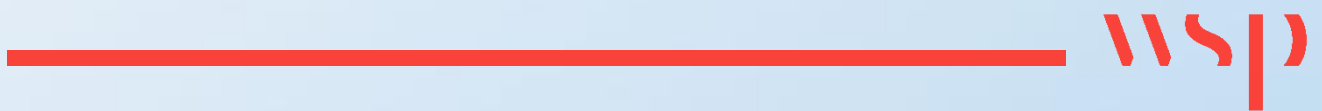


Follow-Up Action

Where there any follow up actions undertaken such as informing stakeholders, re-training staff, request for an updated to the DPMP or contacting the complainant if necessary?

Appendix D

DUST COMPLAINTS FORM





Customer Details	
Customer Name	
Address	
Postcode	
Customer Contact Details	
Tel	
Email	
Date	
Complaint Ref Number	
Complaint Details	
Investigation Details	
Investigation carried out by	
Position	
Date & time investigation carried out	
Weather conditions	
Wind direction and speed	
Investigation findings	
Feedback given to Environment Agency and/or local authority	
Date feedback given	
Feedback given to public	
Date feedback given	



Review and Improve	
Improvements needed to prevent a reoccurrence	
Proposed date for completion of the improvements	
Actual date for completion	
If different insert reason for delay	
Does the dust management plan need to be updated	
Date that the dust management plan was updated	
Closure	
Site Manager review date	
Site Manager signature to confirm no further action required	

Appendix E

NRMM MONTHLY COMPLIANCE FORM





4th Floor
6 Devonshire Square
London
EC2M 4YE

wsp.com

PUBLIC