Appendix 12.5: Phase 1 Construction Dust Assessment

As detailed planning permission is being sought for Phase 1, a separate Construction Dust Assessment is presented below for this aspect of the development only.

The methodology for the construction phase dust assessment is set out in guidance from the Institute of Air Quality Management (IAQM)[1] and is detailed in Appendix 12.2.

Construction Phase Assessment – Dust and Particulate Matter Emissions

The main activities involved with the construction phase of works are as follows:

- **Demolition** of existing buildings within the Proposed Development area. No demolition activities are proposed and so no further consideration is required.
- **Earthworks** that may be required prior to the construction phase of works. The main sources of dust can include:
  - Cleaning the Site;
  - Stripping and stockpiling of topsoil and subsoil;
  - Ground excavation;
  - Bringing in, tipping and spreading materials on site;
  - Stockpiling materials;
  - Levelling ground;
  - Trenching;
  - Road construction; and
  - Vehicle movements on Site roads.
- **Construction** that will involve the construction of individual building access roads, the car parking areas and the buildings themselves; and
- **Trackout** which is defined as the transport of dust and dirt by vehicles, travelling from a construction site on to the public road network. This may occur through the spillage of dusty materials onto road surfaces or through the transportation of dirt by vehicles that have travelled over muddy ground on the Site. This dust and dirt can then be deposited and re-suspended by other vehicles.

Step 2A

Step 2A of the construction phase dust assessment has defined the potential dust emission magnitude from earthworks, construction and trackout in the absence of site-specific mitigation. Examples of the criteria for the dust emission classes are detailed in the IAQM guidance.

[1] Institute of Air Quality Management, Assessment of Dust from Demolition and Construction, August 2023

Step 2B

Step 2B of the construction phase dust assessment has defined the sensitivity of the area, taking into account the significance criteria detailed in Tables 3 to 7 in Appendix 12.2, for earthworks, construction and trackout. The sensitivity of the area to each activity is assessed for potential dust soiling, human health and ecological impacts.

For demolition, earthworks and construction, there are currently more than 10 and 100 receptors (residential) within 20m of where these activities may take place, which is assumed to be the red-line boundary for the purposes of this assessment.

The routing of construction vehicles is unknown at this stage. Therefore, for the purposes of this assessment, worst case routing scenarios have been assumed for assessment of potential trackout impacts at nearby receptors. As a result, for trackout, there are more than 100 receptors (residential and commercial) within 50m of where trackout may occur for a distance of up to 500m from the site entrance.

Step 2C

Step 2C of the construction phase dust assessment has defined the risk of impacts from each activity. The dust emission magnitude is combined with the sensitivity of the surrounding area. The risk of dust impacts from each activity, with no mitigation in place has been assessed in accordance with the criteria detailed in Tables 8 to 10 within Appendix 12.2.

Summary

Table 22 details the results of Step 2 of the construction phase assessment for human receptors.

Table 22: Construction Phase Dust Assessment for Human Receptors

	Activity			
	Demolition	**Earthworks**	**Construction**	**Trackout**
Step 2A				
Dust Emission Magnitude	N/A	Large[a]	Large[b]	Medium[c]
Step 2B				
Sensitivity of Closest Receptors	N/A	High	High	High
Sensitivity of Area to Dust Soiling Effects	N/A	High	High	High
Sensitivity of Area to Human Health Effects	N/A	Low[d]	Low[d]	Low[d]
Step 2C				
Dust Risk: Dust Soiling	N/A	High Risk	High Risk	Medium Risk

	Activity			
	Demolition	**Earthworks**	**Construction**	**Trackout**
Dust Risk: Human Health	N/A	Low Risk	Low Risk	Low Risk
a. Total site area estimated to be more than 110,000m^2				
b. Total building volume estimated to be more than 75,000m^3, with potentially dusty construction materials. For the purposes of the assessment a robust approach has been adopted.				
c. Number of construction phase vehicles estimated to be between 10 and 50 per day.				
d. Background annual mean PM_{10} concentration is taken from the LAQM Defra default concentration maps, for the appropriate grid square for 2023				

Step 3

During the construction phase, the implementation of effective mitigation measures will substantially reduce the potential for nuisance dust and particulate matter to be generated.

The construction phase assessment identified that:

- The risk of dust soiling effects is classed as high for earthworks and construction, and medium for trackout; and
- The risk of human health effects is classed as low for earthworks, construction and trackout.

This assumes that no mitigation measures are applied, except those required by legislation. Site-specific mitigation measures do not need to be recommended if the risk category is 'negligible'.

The risk of dust soiling and human health effects are not negligible for all activities. Therefore, site-specific mitigation will be implemented to ensure dust effects from these activities will be 'not significant'.

A best practice dust mitigation plan will be written and implemented for the Site. This will set out the practical measures to be incorporated as part of a best working practice scheme. This will take into account the recommendations included within the IAQM guidance, which may include but are not limited to the following:

- Revegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable;
- 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;
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever possible;
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the Site where reasonably practicable);
- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of Site. This may require the sweeper being continuously in use; and
- Ensure vehicles entering and leaving the Site are covered to prevent escape of materials during transport.

All dust and air quality complaints should be recorded and appropriate measures be taken to identify causes and reduce emissions in a timely manner. Exceptional incidents that cause dust and/or emissions, and the action taken to resolve the situation, should be recorded in a log book and made available to BMBC on request.

It is recognised that the final design solutions will be developed with the input of the Contractor to maximise construction efficiencies, to use modern construction techniques and sustainable materials, and to incorporate the particular skills and experience offered by the successful contractor.

Step 4

Step 4 of the construction phase dust assessment has been undertaken to determine the significance of the dust effects arising from demolition, earthworks, construction and trackout associated with the Proposed Development.

The implementation of effective mitigation measures during the construction phase, such as those detailed in Step 3, will substantially reduce the potential for nuisance dust and particulate matter to be generated and any residual impact should be **'not significant'**.