

Hampshire Water Transfer and Water Recycling Project

Environmental Statement – Appendix 6.1 Construction dust and fine particulate matter assessment methodology

VOLUME NUMBER: 6

PLANNING INSPECTORATE SCHEME NUMBER: WA010002

APPLICATION DOCUMENT REFERENCE: 6.2

APFP REGULATION: 5(2)(a)

May 2026

Version 0



from
**Southern
Water** 

The Southern Water logo consists of three stylized, wavy blue lines of varying lengths, positioned to the right of the text 'Southern Water'.

Contents

- 1 Construction dust and fine particulate matter assessment methodology.. 1**
 - 1.1 Introduction 1
 - 1.2 Step 1: Screen the need for a detailed assessment..... 1
 - 1.3 Step 2: Assess the risk of dust impacts..... 1
 - 1.4 Step 2A: Define the potential dust emission magnitude 2
 - 1.5 Step 2B: Define the sensitivity of the area 3
 - 1.6 Step 2C: Define the risk of impacts 6
 - 1.7 Step 3: Site-specific mitigation 6
 - 1.8 Step 4: Determine significant effects 6
- References 8**

Tables

- Table 1-1 Criteria used in the determination of dust emission magnitude..... 2
- Table 1-2 Criteria used for determining sensitivity of receptors..... 4
- Table 1-3 Sensitivity of the area to dust soiling effects on people and property 5
- Table 1-4 Sensitivity of the area to human health impacts 5
- Table 1-5 Sensitivity of the area to ecological effects..... 6
- Table 1-6 Risk of impacts – demolition 6
- Table 1-7 Risk of impacts – earthworks, construction and trackout 6

1 Construction dust and fine particulate matter assessment methodology

1.1 Introduction

1.1.1 The following sections outline criteria developed by the Institute of Air Quality Management (IAQM) [1] for the assessment of air quality impacts arising from construction activities associated with the Proposed Development. The assessment procedure is divided into four steps and is summarised below.

1.2 Step 1: Screen the need for a detailed assessment

1.2.1 An assessment would normally be required where there are human receptors within 250m of the site boundary and/or within 50m of the route(s) used by construction vehicles on the public highway, up to 250m from the site entrance(s). Internal guidance from Natural England (NE) recommends that ecological receptors within 200m of a site should be considered in a construction dust and fine particulate matter assessment, as opposed to only those ecological sites within 50m of a site (as stated in IAQM Guidance [1]. Both the NE and IAQM guidance was used in this assessment).

1.2.2 An 'ecological receptor' refers to any designated habitat potentially affected by dust soiling. For locations with a statutory designation, such as a Sites of Special Scientific Interest (SSSI), Special Areas of Conservation (SAC), Ramsar, and Special Protection Areas (SPA), consideration should be given as to whether the particular site is sensitive to dust. Some non-statutory sites, such as Ancient Woodlands and Local Nature Reserves (LNR), have also be considered where appropriate.

1.2.3 On the basis of the distance to the Proposed Development, a more detailed assessment is screened out, it can be concluded that the level of risk is 'negligible'.

1.2.4 The construction dust and fine particulate matter assessment was undertaken using a worst case scenario whereby the maximum magnitude of works are undertaken in proximity to the greatest number of human and ecological receptors (this may not necessarily be in the same location). Recommended mitigation measures for the worst case location(s) would then be applied to all construction works, to provide a robust set of mitigation following best practice.

1.2.5 Within 250m of the Proposed Development, there are several human receptors, along with ecological receptors within 200m. Consequently, the assessment follows the IAQM guidance [1], which considers the potential for impacts for both human and ecological receptors.

1.3 Step 2: Assess the risk of dust impacts

1.3.1 A risk category is allocated to a site based on the scale and nature of the works (Step 2A) and the sensitivity of the area to dust impacts (Step 2B). These two factors are combined in Step 2C to determine the risk of dust impacts before the

implementation of mitigation measures. The assigned risk categories may be different for each of the four construction activities outlined by the IAQM (demolition, earthworks, construction and trackout).

1.4 Step 2A: Define the potential dust emission magnitude

1.4.1 The IAQM guidance [1] recommends that the dust emission magnitude is determined for demolition, earthworks, construction and trackout. The dust emission magnitude is based on the scale of the anticipated works. Table 1-1, describes the potential dust emission class criteria for each outlined construction activity.

Table 1-1 Criteria used in the determination of dust emission magnitude

Activity	Criteria used to determine dust emission class		
	Small	Medium	Large
Demolition	<ul style="list-style-type: none"> Total building volume <12,000m³ Construction material with low potential for dust release (e.g. metal cladding or timber) Demolition activities <6m above ground Demolition during wetter months 	<ul style="list-style-type: none"> Total building volume 12,000m³-75,000m³ Potentially dust construction material Demolition activities 6-12m above ground level 	<ul style="list-style-type: none"> Total building volume >75,000m³ Potentially dusty construction material (e.g. concrete) On-site crushing and screening Demolition activities >12m above ground level
Earthworks	<ul style="list-style-type: none"> Total site area <18,000m² Soil with a large grain size (e.g. sand) <5 heavy earth moving vehicles active at any one time Formation of bunds <3m in height 	<ul style="list-style-type: none"> Total site area 18,000 – 111,000m² Moderately dusty soil type (e.g. silt) 5-10 heavy earth moving vehicles active at any one time Formation of bunds 3-6m in height 	<ul style="list-style-type: none"> Total site area >110,000m² Potentially dusty soil type (e.g. clay, which will be prone to suspension when dry) >10 heavy earth moving vehicles active at any one time Formation of bunds >6m in height
Construction	<ul style="list-style-type: none"> Total building volume <12,000m³ Construction material with low potential for dust release (e.g. metal cladding or timber) 	<ul style="list-style-type: none"> Total building volume 12,000 – 75,000m³ Potentially dusty construction material (e.g. concrete), on site concrete batching 	<ul style="list-style-type: none"> Total building volume >75,000m³ On site concrete batching, sandblasting

Activity	Criteria used to determine dust emission class		
	Small	Medium	Large
Trackout	<ul style="list-style-type: none"> • <20 outward Heavy Duty Vehicle (HDV) trips in any one day • Unpaved road length <50m 	<ul style="list-style-type: none"> • 20-50 outward HDV trips in any one day • Unpaved road length 50-100m 	<ul style="list-style-type: none"> • >50 outward HDV trips in any one day • Unpaved road length >100m

1.4.2 The potential dust emission magnitude for the Proposed Development was determined using criteria detailed in Table 1-1 and presented in Table 6-20 of the Environmental Statement (ES) Chapter 6 Air quality and odour, Volume 1 (Document reference 6.2, DCO Volume 6).

1.5 Step 2B: Define the sensitivity of the area

1.5.1 The sensitivity of the area takes into account the following factors and is detailed in Table 1-2, adapted from Box 7 to Box 9 of the IAQM guidance:

1. The specific sensitivities of receptors in the area
2. The proximity and number of receptors
3. The local background PM₁₀ concentration
4. Site-specific factors, such as whether there are natural shelters, such as trees, to reduce the risk of windblown dust

Table 1-2 Criteria used for determining sensitivity of receptors

Sensitivity of Receptor	Criteria used to determine dust emission class		
	Human receptors		Ecological receptors
	Dust soiling effects	Health effects of PM ₁₀	Ecological effects
High	Dwellings, museums and other culturally important collections, medium and long-term car parks and car showrooms.	Residential properties, hospitals, schools and residential care homes.	Locations with an international or national designation and the designated features may be affected by dust soiling. Indicative examples include a SAC designated for acid heathlands or a local site designated for lichens adjacent to the demolition of a large site containing concrete (alkali) buildings
Medium	Parks, places of work.	Office and shop workers not occupationally exposed to PM ₁₀ .	Locations where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown. Indicative example is a SSSI with dust sensitive features.
Low	Playing fields, farmland, footpaths, short-term car parks and roads.	Public footpaths, playing fields, parks and shopping streets.	Locations with a local designation where the features may be affected by dust deposition. Indicative example is a local Nature Reserve with dust sensitive features.

1.5.2 The criteria detailed in Table 1-3 to Table 1-5, were used to determine the sensitivity of the area to dust soiling effects, human health impacts and ecological effects. Table 1-3 to Table 1-5 are taken from the IAQM guidance Table 2 to Table 4. ES Figure 6.2 Air quality construction dust and fine particulate matter buffers (inc. trackout), Volume III (Document reference 6.3, DCO Volume 6), details the distance bands, as detailed in Table 1-3 to Table 1-5, from the Order Limits for use in the construction phase assessment.

Table 1-3 Sensitivity of the area to dust soiling effects on people and property

Sensitivity of Receptors	No. of receptors	Distance from 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 1-4 Sensitivity of the area to human health impacts

Sensitivity of Receptors	Annual mean PM ₁₀ concentration	No. of receptors	Distance from source (m)			
			<20	<50	<100	<250
High	>32µg m ⁻³	>100	High	High	High	Medium
		10-100	High	High	Medium	Low
		1-10	High	Medium	Low	Low
	28-32µg m ⁻³	>100	High	High	Medium	Low
		10-100	High	Medium	Low	Low
		1-10	High	Medium	Low	Low
	24-28µg m ⁻³	>100	High	Medium	Low	Low
		10-100	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	<24µg m ⁻³	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Medium	>32µg m ⁻³	>10	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	28-32µg m ⁻³	>10	Medium	Low	Low	Low
		1-10	Low	Low	Low	Low
	24-28µg m ⁻³	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
	<24µg m ⁻³	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Low	-	≥1	Low	Low	Low	Low

Table 1-5 Sensitivity of the area to ecological effects

Sensitivity of Receptors	Distance from source (m)		
	<20	<50	<200*
High	High	Medium	Low
Medium	Medium	Low	Low
Low	Low	Low	Low

*Based on NE internal guidance

1.6 Step 2C: Define the risk of impacts

1.6.1 The dust emission magnitude and sensitivity of the area are combined to determine the risk of impacts from each activity (demolition, earthworks, construction and trackout) before mitigation is applied. These criteria are detailed in Table 1-6 and Table 1-7, taken from Table 6 to Table 10 of the IAQM guidance [1].

Table 1-6 Risk of impacts – demolition

Sensitivity of Receptors	Dust emission magnitude		
	Large	Medium	Small
High	High risk	Medium risk	Medium risk
Medium	High risk	Medium risk	Low risk
Low	Medium risk	Low risk	Negligible

Table 1-7 Risk of impacts – earthworks, construction and trackout

Sensitivity of Receptors	Dust emission magnitude		
	Large	Medium	Small
High	High risk	Medium risk	Low risk
Medium	Medium risk	Medium risk	Low risk
Low	Low risk	Low risk	Negligible

1.7 Step 3: Site-specific mitigation

1.7.1 Step three of the IAQM guidance [1] identifies appropriate site-specific mitigation. These measures are related to whether the site is a low, medium, or high-risk site. Mitigation for the Proposed Development is detailed in ES Chapter 6 Air quality and odour, Volume I (Document reference 6.1, DCO Volume 6).

1.8 Step 4: Determine significant effects

1.8.1 As shown in Step 2C above, in assessing the significance of construction dust impacts using the IAQM guidance [1], the dust emission magnitude is combined with the sensitivity of the area to determine the risk of impacts prior to mitigation. Step 3 identifies appropriate site-specific mitigation depending on the risk of

impact. This assessment deviates slightly from the methodology set out in ES Chapter 5 EIA approach and methodology, Volume I (Document reference 6.1, DCO Volume 6), as the IAQM guidance does not assign a significance before applying mitigation measures. Once appropriate mitigation measures have been identified as required, the significance of construction phase impacts can be determined. The IAQM considers it to be most appropriate to only assign significance post mitigation as it assumes mitigation is inherent in the design/construction approach. The guidance states that with the implementation of mitigation measures, the residual impacts from construction would be not significant.

References

- [1] Institute of Air Quality Management, *Guidance on the assessment of dust from demolition and construction v2.2*, 2024.



from
Southern
Water. 

The Southern Water logo graphic consists of three white, stylized wavy lines that resemble water waves, positioned to the right of the word "Water".