Balfour Beatty VINCI Working in partnership with HS2

1MC13

XXXXX Dust Risk Assessment Form

Work Package Ref:

Document No.: XXXXX-XXX-XX-XXX-XXXX-XXXXXX

Revision	Author	Checked by	Approved by	Date Approved	Reason for Revision
P01/C01	Insert name	Insert name	Insert name	Insert date	Insert

STAKEHOLDER REVIEW REQUIRED (SRR)	PURPOSE OF SRR
☐ YES, please specify below ☐ No If yes, please details :	☐ Comment ☐ Information ☐ Approval

Document Approval

Team	Yes / No	Name	Position	Date
Quality				
Health & Safety				
Environment & Sustainability				
Environment & Sustainability				

Revision History

Revision	Purpose	Date

Tab Modified	Details of Modification

Dust Risk Assessment for Demolition and Construction Sites

This dust risk asssesment process and template follows expert guidance published by the Institute of Air Quality Management (IAQM):

Guidance on the assessment of dust from demolition and construction. Version 2.2

The above document (accessible for free at www.iaqm.co.uk) should be used as your primary guidance in conjunction with completing this template.

Note: As with all risk assessment, it is necessary to exercise professional judgement. This is necessary, because the diverse range of projects that are likely to be subject to dust impact assessment means that it is not possible to be prescriptive as to how to assess the impacts. Also a wide range of factors affect the amount of dust that may arise, and these are not readily quantified. This template and associated IAQM guidance provides a framework to ensure that assessments are more consistent and consider the full range of potential impacts.

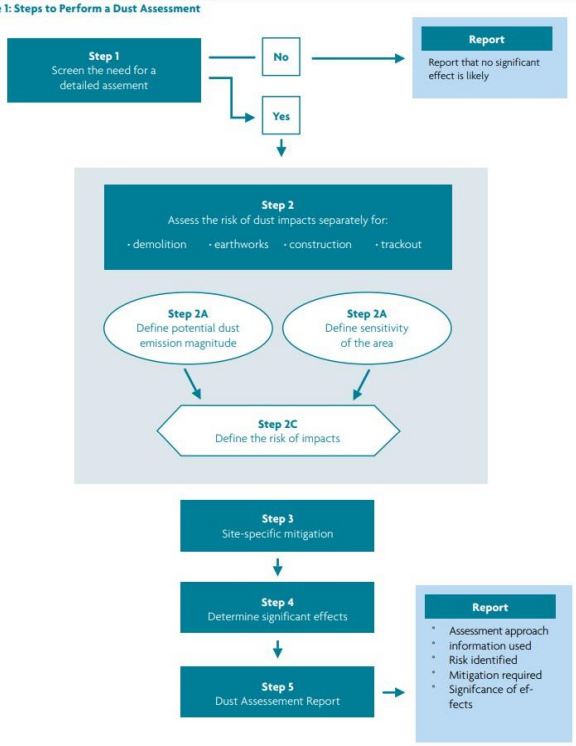
For the most part, dust risk assessments have already been carried out in the Environmental Statement (ES) and this template serves to help verify that BBV temporary works remain compliant with EMR.

NOTE: Key changes in version **2.2** of the guidance are:

- Distance from site boundary for dust risk assessment **reduced** from 350 m to **250** m.

- Definitions updated for **LEVEL** of dust expected from **LARGE**, **MEDIUM** and **SMALL** sites (see mouseover text boxes on Dust Assessment tab).

Figure 1: Steps to Perform a Dust Assessment



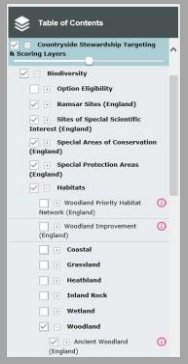
Process Map taken from:
Guidance on the assessment of dust from demolition and construction. Version 2.2
© Institute of Air Quality Management

Resources for Dust Assessment:

Human & Ecological receptors (250m radius)
Use Magic Map
https://magic.defra.gov.uk/MagicMap.aspx

1. Launch Magic Map
2. Set your location

3. Select to show the following ecological layers

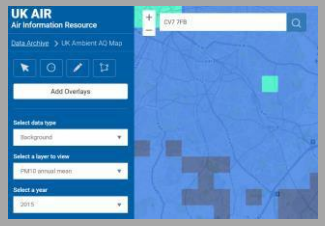


4. Select 'Site Check' (top menu), then:
- Click dot button
- Set buffer to 250 m
- Add point on map
- Click buffer button

Note: to clear the circle, click the X button

Annual Mean PM10 Concentration:
Use UK Ambient Air Quality Interactive Map
https://uk-air.defra.gov.uk/data/gis-mapping

1. Launch Map
2. Set your location and data parameters



2. Click legend to display the colour key for the data

Balfour Beatty VINCI Working in partnership with HS2

DUST RISK ASSESSMENT - CONSTRUCTION WORKS

EXPLANATORY NOTE	This dust risk asssesment process and template follows guidance by the **Institute of Air Quality Management (IAQM)** published in: *Guidance on the assessment of dust from demolition and construction. Version 2.2 (accessible for free at www.iaqm.co.uk)* and constitutes your primary guidance when completing this template. Simply follow Steps 1 to 5 and refer to the guidance beneath the RED TRIANGLES. For the most part, dust risk assessments have already been carried out in the Environmental Statement (ES) and this template serves to help verify that subsequent BBV construction works design and execution remains compliant with EMR. For comparison purposes, the result of any relevant dust risk assessment from the ES should be recorded below.					
Date of Assessment:		**DUST RISK ASSESSMENT RESULT:**		compared with	Low Risk	from the Environmental Statement (ES)
Assessed by:		**Job Title:**				
Site Location:						
Key Assets within area of assessment:						
Chainages:						
Description of Works:						

Site Map	***Guide*** *< mouse over >*	**Human & Ecological receptors (250 m radius)**

Balfour Beatty VINCI Working in partnership with HS2

STEP 1

SCREEN OUT THE NEED FOR A DETAILED ASSESSMENT		
***Part A** : Nature and Magnitude of Dust Emission*		*mouse over*
	--- Scoped Out ---	

STEP 2

ASSESS THE RISK OF DUST IMPACTS		Without CoCP ✖	CoCP in place ✓	See table in **STEP 3** below for **mandatory** CoCP controls expected by HS2		
***Part A** : Nature and Magnitude of Dust Emission*	*Select*	*Level of Dust*	*Level of Dust*	***Guide***	*Brief description of activity & reasoning used to estimate the likely **level of dust***	*mouse over*
Any **demolition?**				*mouse over*		
Any **earthworks?**				*mouse over*		
Any **construction?**				*mouse over*		
Any **track out?** *(< 50 m from human or ecological receptors)*				*mouse over*		

Part B: *Sensitivity of the Area*		***Guide***
Annual Mean PM_{10} Concentration	> 32 ug/m3	*mouse over*

Other factors affecting sensitivity (tick any you think apply):	
Area has a history of dust generating activities	
Dust generating activity occuring on nearby sites	
Pre-existing screening is present to hinder dust	
Local weather / Season is likely to influence dust	
Local topography is likely to influence dust	
Receptor sensitivity is likely to increase over time	

DEMOLITION	***Guide***	***< 20 m** from source*		***20** to **< 50 m** from source*		***50** to **< 100 m** from source*		***100** to **< 250 m** from source*	
		Sensitivity Level	*# Receptors*	*Sensitivity Level*	*# Receptors*	*Sensitivity Level*	*# Receptors*	*Sensitivity Level*	*# Receptors*
Sensitivity of human receptors to **dust soiling** effects	*mouse over*								
Sensitivity of human receptors to the Health Effects of PM_{10}	*mouse over*								
Sensitivity of ecological receptors to **dust-related** effects	*mouse over*								

EARTHWORKS	***Guide***	***< 20 m** from source*		***20** to **< 50 m** from source*		***50** to **< 100 m** from source*		***100** to **< 250 m** from source*	
		Sensitivity Level	*# Receptors*	*Sensitivity Level*	*# Receptors*	*Sensitivity Level*	*# Receptors*	*Sensitivity Level*	*# Receptors*
Sensitivity of human receptors to **dust soiling** effects	*mouse over*								
Sensitivity of human receptors to the Health Effects of PM_{10}	*mouse over*								
Sensitivity of ecological receptors to **dust-related** effects	*mouse over*								

CONSTRUCTION	***Guide***	***< 20 m** from source*		***20** to **< 50 m** from source*		***50** to **< 100 m** from source*		***100** to **< 250 m** from source*	
		Sensitivity Level	*# Receptors*	*Sensitivity Level*	*# Receptors*	*Sensitivity Level*	*# Receptors*	*Sensitivity Level*	*# Receptors*
Sensitivity of human receptors to **dust soiling** effects	*mouse over*								
Sensitivity of human receptors to the Health Effects of PM_{10}	*mouse over*								
Sensitivity of ecological receptors to **dust-related** effects	*mouse over*								

TRACK OUT	***Guide***	***< 20 m** from source*		***20** to **< 50 m** from source*	
		Sensitivity Level	*# Receptors*	*Sensitivity Level*	*# Receptors*
Sensitivity of human receptors to **dust soiling** effects	*mouse over*				
Sensitivity of human receptors to the Health Effects of PM_{10}	*mouse over*				
Sensitivity of ecological receptors to **dust-related** effects	*mouse over*				

Part B Output	Type of Impact	*Sensitivity* of surrounding area to an activity			
		Demolition	Earthworks	Construction	Track Out
	Human - Dust Soiling				
	Human - PM_{10} effects				
	Ecology - dust-related effects				

STEP 2 RESULTS	Type of Impact	Dust Risk (with CoCP in place)			
		Demolition	Earthworks	Construction	Track Out
	Human - Dust Soiling				
	Human - PM_{10} effects				
	Ecology - dust-related effects				

DUST MITIGATION ARRANGEMENTS

IMPORTANT NOTES:
HS2 expects that CoCP is applied effectively and consistently **at all times**.

CoCP controls include the **site specific mitigation measures** set out below. Where it is necessary to go **beyond CoCP**, describe the additional measures in the last row of the table and ensure that they are used. You'll see that CoCP measures are already ticked because they are assumed by HS2 to be in place!

IAQM guidance states that only the biggest risk category from **STEP 2** above needs to be considered for further mitigation e.g., if the site is **Medium** risk for earthworks and construction, but **High** risk for demolition and track-out, the additional mitigation measures (over and above CoCP) should target the **high** risk - and the IAQM guidance highligted in the ***High Risk*** column of the table below should be followed.

For any siites that are assessed in **STEP 4** below as **High** or **Medium** risk for dust - HS2 require **continuous monitoring** to be used (*a prompt will appear when that is the case)*

Each site and location will be different and IAQM guidance recommends you should always use your professional judgement to suit mitigation measures to the local conditions and circumstances.

Key to table (IAQM mitigation measures)**:**
H = Highly recommended
D = Desirable
N = Not required

As a Reminder: In **STEP 2** above, you ticked the following factors as relevant to the dust risk assessment which may influence the requirement for additional measures beyond CoCP:

[None ticked]

Tick the checkboxes below for any **additional** mitigation measures over and above **CoCP** *(Note: HS2 expects CoCP controls <u>are in place</u> as as a minimum!)*

HS2 MANDATORY REQUIREMENT

ASSUMED FULLY IN PLACE FOR ALL HS2 SITES!	*Mitigation Measure*
CoCP ✓	**Code of Construction Practice** (CoCP): **Section 7,** Air Quality and **Section 5.3,** Construction site layout and good housekeeping.

IAQM GUIDANCE *(contains many of the provisions of CoCP, but lists additional measures too)*

MITIGATION FOR ALL SITES: COMMUNICATIONS	*Mitigation Measure*	*High Risk*	*Medium Risk*	*Low Risk*
1	Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.	H	H	N
2	Display the name and contact details of person(s) account- able for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.	H	H	H
3	Display the head or regional office contact information.	H	H	H
MITIGATION FOR ALL SITES: DUST MANAGEMENT	*Mitigation Measure*	*High Risk*	*Medium Risk*	*Low Risk*
4	Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority.	H	H	D
Site Management				
5	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.	H	H	H
6	Make the complaints log available to the local authority when asked.	H	H	H
7	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.	H	H	H

		8		Hold regular liaison meetings with other high risk construction sites within 500 m 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.	H	N	N	

		Monitoring				
		9	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 100 m of site boundary, with cleaning to be provided if necessary.	H	D	D
		10	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	H	H	H
		11	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.	H	H	H
		12	Agree dust deposition, dust flux, or real-time PM10 continuous monitoring locations with the Local Authority. 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.	H	H	N
		Preparing and maintaining the site				
		13	Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.	H	H	H
		14	Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.	H	H	H
		15	Fully enclose site or specific operations where there is a high potential for dust produc- tion and the site is actives for an extensive period	H	H	D
		16	Avoid site runoff of water or mud.	H	H	H
STEP 3		17	Keep site fencing, barriers and scaffolding clean using wet methods.	H	H	D
		18	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.	H	H	D
		19	Cover, seed or fence stockpiles to prevent wind whipping.	H	H	D
		Vehicle/plant and sustainable travel				
		20	Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone and the London NRMM standards, where applicable	H	H	H
		21	Ensure all vehicles switch off engines when stationary - no idling vehicles.	H	H	H
		22	Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.	H	H	H
		23	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)	H	D	D
		24	Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.	H	H	N
		25	Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing)	H	D	N
		Operations				
		26	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.	H	H	H
		27	Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.	H	H	H
		28	Use enclosed chutes and conveyors and covered skips.	H	H	H
		29	Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.	H	H	H
		30	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.	H	H	D
		Waste management				
		31	Avoid bonfires and burning of waste materials.	H	H	H
		Measures specific to demolition				
		32	Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).	H	D	D
		33	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.	H	H	H
		34	Avoid explosive blasting, using appropriate manual or mechanical alternatives.	H	H	H
		35	Bag and remove any biological debris or damp down such material before demolition.	H	H	H

Measures specific to earthworks					
36		Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.	H	D	N
37		Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable	H	D	N
38		Only remove the cover in small areas during work and not all at once	H	D	N
Measures specific to construction					
39		Avoid scabbling (roughening of concrete surfaces) if possible	H	D	D
40		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 appropri- ate additional control measures are in place.	H	H	D
41		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.	H	D	N
42		For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.	D	D	N
Measures specific to trackout					
43		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.	H	H	D
44		Avoid dry sweeping of large areas.	H	H	D
45		Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.	H	H	D
46		Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.	H	H	N
47		Record all inspections of haul routes and any subsequent action in a site log book.	H	H	D
48		Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.	H	H	N
49		Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).	H	H	D
50		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.	H	H	N
51		Access gates to be located at least 10 m from receptors where possible.	H	H	N
Measures beyond CoCP (and IAQM)					

STEP 4

DETERMINE SIGNIFICANT RESIDUAL EFFECTS				
INTERIM RESULT (with **CoCP** in place)		After **additional measures** (if any)		**Justification**
Risk Rating from STEP 2 (Highest):		**FINAL RESULT**	**Negligible**	**Note:** HS2's approach to Dust Risk Assessment expects and assumes that CoCP mitigation is fully in place when determining the input **Level of Dust** in STEP 2 above - Consequently, the determination of residual effects no longer applies and the INTERIM RESULT (left) is the FINAL RESULT.

Environmental Statement (ES)	
Risk Assessment Rating from ES:	Low Risk

STEP 5

DUST ASSESSMENT REPORT	
Detailed dust assessment report	*Select if yes*

Is a detailed report required?

Dust risk assessment summary statement:

Reviewed by:		**Approved by:**	
Job role:		**Job role:**	
Date:		**Date:**	