

Tritax Symmetry (Hinckley) Limited

HINCKLEY NATIONAL RAIL FREIGHT INTERCHANGE

The Hinckley National Rail Freight Interchange Development Consent Order

Project reference TR050007

Environmental Statement Volume 2: Appendices

Appendix 9.3: Construction Phase Dust Assessment

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Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009
Regulation 5(2)(a)

The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017
Regulation 14

This document forms a part of the Environmental Statement for the Hinckley National Rail Freight Interchange project.

Tritax Symmetry (Hinckley) Limited (TSH) has applied to the Secretary of State for Transport for a Development Consent Order (DCO) for the Hinckley National Rail Freight Interchange (HNRFI).

To help inform the determination of the DCO application, TSH has undertaken an environmental impact assessment (EIA) of its proposals. EIA is a process that aims to improve the environmental design of a development proposal, and to provide the decision maker with sufficient information about the environmental effects of the project to make a decision.

The findings of an EIA are described in a written report known as an Environmental Statement (ES). An ES provides environmental information about the scheme, including a description of the development, its predicted environmental effects and the measures proposed to ameliorate any adverse effects.

Further details about the proposed Hinckley National Rail Freight Interchange are available on the project website:

<http://www.hinckleynrfi.co.uk/>

The DCO application and documents relating to the examination of the proposed development can be viewed on the Planning Inspectorate's National Infrastructure Planning website:

<https://infrastructure.planninginspectorate.gov.uk/projects/east-midlands/hinckley-national-rail-freight-interchange/>

APPENDIX 6.1.9.3: AIR QUALITY CONSTRUCTION PHASE DUST ASSESSMENT

Introduction

An assessment of the potential impacts arising from the construction of the HNRFI was undertaken in accordance with the Institute of Air Quality Management guidance: Guidance on the assessment of dust from demolition and construction, 2014¹.

The assessment steps undertaken are summarised as follows:

- Step 1 – screen the requirement for a more detailed assessment. No assessment is required if there are no receptors within a certain distance of the works;
- Step 2 – assess the risk of dust impacts separately for each of the four activities considered (demolition, earthworks, construction and trackout).
 - Step 2A – determine the potential dust emission magnitude for each of the four activities;
 - Step 2B – determine the sensitivity of the area;
 - Step 2C – determine the risk of dust impacts by combining the findings of steps 2A and 2B.
- Step 3 – determine the site-specific mitigation for each of the four activities; and
- Step 4 – examine the residual effects and determine significance.

Construction Phase Assessment

The construction phase of the HNRFI will involve a number of activities which have the potential to impact on local air quality. These include emissions of dust generated through demolition, excavation, construction, earthworks and trackout activities, exhaust pollutant emissions from construction traffic on the local highways network, and exhaust emissions from non-road mobile machinery (NRMM) within the construction site itself.

The location of sensitive receptors in relation to construction activities will affect the potential for such construction activities to cause dust soiling, nuisance and local air quality impacts. Meteorological conditions and the use of control measures will also contribute to the effects experienced.

To enable a conservative assessment, the construction phase dust assessment was undertaken utilising the boundaries of the Order Limits where construction activities were proposed. Where off site improvement works do not involve construction

¹ Institute of Air Quality Management (2014) Guidance on the assessment of dust from demolition and construction, Institute of Air Quality Management

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activities, e.g. replacement of signage, these works were not considered in the construction phase dust assessment.

Step 1: Screen the need for a detailed assessment

Step 1 of the IAQM guidance¹ involves a screening assessment to consider whether a more detailed construction phase dust assessment is required.

In accordance with the guidance, a detailed assessment is required if:

- Human receptors are located within 350m of the Main Order Limits where construction activities will occur or 50m of routes used by construction vehicles on the public highways, up to 500m from the site entrances; or
- Ecological receptors are located within 50m of the HNRFI boundary of the site or 50m of routes used by construction vehicles on the public highways, up to 500m from the site entrances.
- From a review of the Multi Agency Geographic Information for the Countryside (MAGIC) website², designated ecological sites were identified within the Main HNRFI and ecological impacts were considered further. In addition, human receptors are also located within 350m of the Main HNRFI. A construction phase assessment was therefore undertaken.

Step 2: Assess the risk of dust impacts**Step 2A: Define the potential dust emission magnitude**

The dust emission magnitudes for the construction activities were defined using the criteria detailed in the IAQM guidance¹. These criteria and the dust emission magnitude defined for the HNRFI are detailed in Table 3.1.

Table 3.1: Dust emission magnitude criteria and definition.

Activity	IAQM Dust Emission Magnitude	IAQM Dust Emission Magnitude Criteria	Dust Emission Magnitude
Demolition	Large	Total building volume >50,000 m ³ , potentially dusty construction material (e.g. concrete), on-site	Large: Total volume of buildings to be demolished may exceed 50,000m ³

² Defra, Multi Agency Geographic Information for the Countryside (MAGIC) [<http://magic.defra.gov.uk/>]

Activity	IAQM Dust Emission Magnitude	IAQM Dust Emission Magnitude Criteria	Dust Emission Magnitude
		crushing and screening, demolition activities >20 m above ground level	with potentially dusty materials being demolished.
	Medium	Total building volume 20,000 m ³ – 50,000 m ³ , potentially dusty construction material, demolition activities 10-20 m above ground level;	
	Small	Total building volume <20,000 m ³ , construction material with low potential for dust release (e.g. metal cladding or timber), demolition activities <10 m above ground, demolition during wetter months	
Earthworks	Large	Total site area >10,000m ² , potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size), >10 heavy earth moving vehicles active at any one time, formation of bunds	Large: The total Site area is significantly greater than 10,000m ² and total material moved is anticipated to be

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Activity	IAQM Dust Emission Magnitude	IAQM Dust Emission Magnitude Criteria	Dust Emission Magnitude
		>8 m in height, total material moved >100,000 tonnes.	greater than 100,000 tonnes.
	Medium	Total site area 2,500m ² – 10,000m ² , moderately dusty soil type (e.g. silt), 5 - 10 heavy earth moving vehicles active at any one time, formation of bunds 4m - 8m in height, total material moved 20,000 tonnes – 100,000 tonnes.	
	Small	Total site area <2,500m ² , soil type with large grain size (e.g. sand), <5 heavy earth moving vehicles active at any one time, formation of bunds <4m in height, total material moved <20,000 tonnes, earthworks during wetter months.	
Construction	Large	Total building volume >100,000m ³ , on site concrete batching, sandblasting.	Large: Total building volume is

Activity	IAQM Dust Emission Magnitude	IAQM Dust Emission Magnitude Criteria	Dust Emission Magnitude
	Medium	Total building volume 25,000m ³ – 100,000m ³ , potentially dusty construction material (e.g. concrete), on site concrete batching.	significantly greater than 100,000m ³ .
	Small	Total building volume <25,000m ³ , construction material with low potential for dust release (e.g. metal cladding or timber).	
Trackout	Large	>50 HDV (>3.5t) outward movements in any one day, potentially dusty surface material (e.g. high clay content), unpaved road length >100m.	Large: > 50 HDV outward movements are anticipated in any one day over the duration of the development
	Medium	10-50 HDV (>3.5t) outward movements in any one day, moderately dusty surface material (e.g. high clay content), unpaved road length 50m – 100m.	

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Activity	IAQM Dust Emission Magnitude	IAQM Dust Emission Magnitude Criteria	Dust Emission Magnitude
	Small	<10 HDV (>3.5t) outward movements in any one day, surface material with low potential for dust release, unpaved road length <50m.	

Step 2B: Define the sensitivity of the area

The sensitivity of the study area takes into account the specific receptors in the vicinity of the site, the proximity and number of those receptors, the local background concentration of PM₁₀ and site-specific factors. The assessment requires the determination of the sensitivity of the area for the purposes of dust soiling, human health and ecological impacts and these are presented in Table 3.2.

Table 3.2: Determination of the sensitivity of the area.

Potential Impact	Justification	Sensitivity			
		Demolition	Earthworks	Construction	Trackout
Dust Soiling	There are more than 100 highly sensitive receptors within 20m of the Order Limits. The sensitive receptors identified are existing residential dwellings, car parks and footpaths within	High	High	High	High

Potential Impact	Justification	Sensitivity			
		Demolition	Earthworks	Construction	Trackout
	<p>20m of the boundaries of the Order Limits, where dust soiling may affect the amenity of the users there for extended periods.</p> <p>Residential dwellings and long-term car parks are considered highly sensitive in accordance with guidance. Footpaths are considered to be low sensitivity receptors. The highest sensitivity was considered in the assessment.</p>				
Human Health	<p>There are more than 100 highly sensitive receptors within 20m of the Order Limits. The highly sensitive receptors are residential dwellings.</p> <p>The background PM₁₀ concentrations across the study area, as detailed within Chapter 6.1.9 Air Quality,</p>	High	High	High	High

Potential Impact	Justification	Sensitivity			
		Demolition	Earthworks	Construction	Trackout
	<p>are less than $24\mu\text{g}\cdot\text{m}^{-3}$.</p> <p>Whilst the IAQM guidance determined the risk of human health effects as 'Medium', due to the proximity of sensitive receptors to the HNRFI, the sensitivity was uplifted to 'High'.</p>				
Ecological Receptors	<p>The Burbage Common and Woods and Aston Firs SSSI are located within 20m of the Order Limits.</p> <p>The appointed ecological consultants advised these habitats are of medium sensitivity to dust. Due to the close proximity of these habitats to the HNRFI, and to provide a conservative assessment, the sensitivity of the habitats to dust</p>	High	High	High	High

Potential Impact	Justification	Sensitivity			
		Demolition	Earthworks	Construction	Trackout
	was uplifted to high.				

Step 2C: Define the risk of impacts

The dust emission magnitude determined in Step 2A is then combined with the sensitivity of the area determined in Step 2B to define the risk of dust impacts with no mitigation applied. The results of this assessment are detailed in Table 3.3.

Table 3.3: Summary dust risk table to define site specific assessment.

Activity	Step 2A: Dust Emission Magnitude	Step 2B: Sensitivity of the Area	Step 2C: Risk of Dust Impacts
Dust Soiling Effects on People and Property			
Demolition	Large	High	High Risk
Earthworks	Large	High	High Risk
Construction	Large	High	High Risk
Trackout	Large	High	High Risk
Human Health Impacts			
Demolition	Large	High	High Risk
Earthworks	Large	High	High Risk

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Activity	Step 2A: Dust Emission Magnitude	Step 2B: Sensitivity of the Area	Step 2C: Risk of Dust Impacts
Construction	Large	High	High Risk
Trackout	Large	High	High Risk
Ecological Receptors			
Demolition	Large	High	High Risk
Earthworks	Large	High	High Risk
Construction	Large	High	High Risk
Trackout	Large	High	High Risk

Step 3: Site-specific mitigation

The risk of dust impacts defined in Step 2C is used to determine the measures required to mitigate construction phase dust impacts. The mitigation measures are detailed in Table 9.40 and 9.41 in Chapter 6.1.9: *Air Quality*.

Step 4: Determine significant effects

In accordance with the IAQM guidance¹, with the implementation of the mitigation measures detailed in Chapter 6.19: *Air Quality*, the residual impacts from the construction phase are considered to be 'not significant'.