Environmental Impact Assessment Report
Volume 3, Appendix 21.1: Air Quality Technical Data

MarramWind Offshore Wind Farm

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MarramWind

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1. Construction Dust Technical Data

1.1.1.1 This section includes the detailed methodology for assessing construction dust provided in the Institute of Air Quality Management's (IAQMs) *Guidance on the assessment of dust from demolition and construction* (2024) *Version 2.2*.

1.2 Step 1 – screening the need for a detailed assessment

1.2.1.1 An assessment will normally be required where there are:

- '*human receptors'* within 250 metres (m) of the Onshore Red Line Boundary; or within 50m of the route(s) used by construction vehicles on the public highway, up to 50m from the site entrance(s); and / or
- *'ecological receptors'* within 50m of the Onshore Red Line Boundary; or within 50m of the route(s) used by construction vehicles on the public highway, up to 250m from the site entrance(s).

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

1.3 Step 2A – define the potential dust emission magnitude

1.3.1.1 The following are examples of how the potential dust emission magnitude for different activities is defined (note that not all the criteria need to be met for a particular class). Other criteria may be used if justified in the assessment.

Table 1.1 Definitions of dust emission magnitude

Dust magnitude	Activity
Large	**Demolition** >75,000m^3 building demolished, dusty material (for example: concrete), on-site crushing / screening, demolition >12m above ground level.
	Earthworks >110,000m^2 site area, dusty soil type (for example: clay); > ten earth moving vehicles active simultaneously; and >6m high bunds formed.
	Construction >75,000m^3 building volume, on site concrete batching, sandblasting.
	Trackout >50 Heavy Duty Vehicles (HDVs) out / day, dusty surface material (for example: clay); and >100m unpaved roads.
Medium	**Demolition** >12,000m^3 to 75,000m^3 building demolished, dusty material (for example: concrete). >6m to 12m above ground level.

Dust magnitude	Activity
	Earthworks >18,000m^2 to 110,000m^2 site area, moderately dusty soil (for example: silt), five to ten earth moving vehicles active simultaneously, 3m to 6m high bunds.
	Construction >12,000m^3 to 75,000m^3 building volume, dusty material for example, concrete, on site concrete batching.
	Trackout >20 to 50 HDVs out / day, moderately dusty surface material (for example: clay), 50m to 100m unpaved roads.
Small	**Demolition** <12,000m^3 building demolished, non-dusty material (for example: metal cladding), <6m above ground level, work during wetter months.
	Earthworks <18,000m^2 site area, soil with large grain size (for example: sand); and < five earth moving vehicles active simultaneously, <3m high bunds, earthworks during wetter months.
	Construction <12,000m^3, non-dusty material (for example: metal cladding or timber).
	Trackout <20 HDVs out / day, non-dusty soil, <50m unpaved roads.

1.4 Step 2B – define the sensitivity of the area

1.4.1.1 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 guidance provides guidance to allow the sensitivity of individual receptors to dust soiling and health effects to be identified to assist in the assessment of the overall sensitivity of the study area.

Table 1.2 Sensitivity of the area to dust soiling impacts

Receptor sensitivity	Number of receptors	Distance from the source (m)			
		<20	**<50**	**<100**	**<250**
High	>100	High	High	Medium	Low
	10 to 100	High	Medium	Low	Low
	1 to 10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>100	High	High	Medium	Low

Table 1.3 Sensitivity of the area to human health impacts

Receptor sensitivity	Annual mean particulate matter of less than ten micrometres in diameter (PM_{10}) concentration (Microgram per metre cubed [$\mu g/m^3$])	Number of receptors	Distance from the source (m)			
			<20	<50	<100	<250
High	>32	>100	High	High	High	Medium
		10 to 100	High	High	Medium	Low
		1 to 10	High	Medium	Low	Low
	28 to 32	>100	High	High	Medium	Low
		10 to 100	High	Medium	Low	Low
		1 to 10	High	Medium	Low	Low
	24 to 28	>100	High	Medium	Low	Low
		10 to 100	High	Medium	Low	Low
		1 to 10	Medium	Low	Low	Low
	<24	>100	Medium	Low	Low	Low
		10 to 100	Low	Low	Low	Low
		1 to 10	Low	Low	Low	Low
Medium	>32	>10	High	Medium	Low	Low
		1 to 10	Medium	Low	Low	Low
	28 to 32	>10	Medium	Low	Low	Low
		1 to 10	Low	Low	Low	Low
	24 to 28	>10	Low	Low	Low	Low
		1 to 10	Low	Low	Low	Low
	<24	>10	Low	Low	Low	Low
		1 to 10	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low

Table 1.4 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

1.5 Step 2C – define the risk of impacts

1.5.1.1 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 1.5 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

1.6 Step 3 – site specific mitigation

1.6.1.1 Having determined the risk categories for each of the four construction 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 guidance details the mitigation measures required for high, medium and low risk sites as determined in Step 2C.

1.7 Step 4 – determine significant effects

1.7.1.1 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**.

2. References

Institute of Air Quality Management (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 16 July 2025].

3. Abbreviations

3.1 Abbreviations

Acronym	Definition
µg/m^3	Microgram per metre cubed
HDV	Heavy Duty Vehicle
IAQM	Institute of Air Quality Management
PM_{10}	Particulate Matter of less than ten micrometres in diameter

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