

# Tween Bridge Solar Farm

## Environmental Statement

### Appendix 14.4: Construction Dust Assessment Procedure

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms  
and Procedure) Regulations 2009

APFP Regulation 5(2)(a)

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Tween Bridge Solar Farm

## **Chapter 14: Air Quality and Greenhouse Gases Appendices**

For RWE Renewables UK Solar and Storage Ltd

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<b>Prepared By:</b>	Frances Marshall
<b>Reviewed By:</b>	Laurence Caird

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Registered Office: 3rd Floor St Augustine's Court, 1 St. Augustine's Place Bristol BS1 4UD Tel: +44(0)117 974 1086

24 Greville Street, Farringdon, London, EC1N 8SS Tel: +44(0)20 3873 4780

First Floor, Patten House, Moulders Lane, Warrington WA1 2BA Tel: +44(0)1925 937 195

8-9 Ship St, Brighton and Hove, Brighton BN1 1AD Tel: +44(0)20 3873 4780

Avenue du Port, 86c Box 204, 1000 Bruxelles Tel: +44(0)20 3873 4780

## 14.4 Construction Dust Assessment Procedure

14.4.1 The criteria developed by IAQM<sup>24</sup> divide the activities on construction sites into four types to reflect their different potential impacts. These are:

- demolition;
- earthworks;
- construction; and
- trackout.

14.4.2 The assessment procedure includes the four steps summarised below:

### STEP 1: Screen the Need for a Detailed Assessment

14.4.3 An assessment is required where there is a human receptor within 250m of the boundary of the site and/or within 50m of the route(s) used by construction vehicles on the public highway, up to 250m from the site entrance(s), or where there is an ecological receptor within 50m of the boundary of the site and/or within 50m of the route(s) used by construction vehicles on the public highway, up to 250m from the site entrance(s).

14.4.4 Where the need for a more detailed assessment is screened out, it can be concluded that the level of risk is negligible and that any effects will be 'not significant'. No mitigation measures beyond those required by legislation will be required.

### STEP 2: Assess the Risk of Dust Impacts

14.4.5 A site is allocated to a risk category based on two factors:

- the scale and nature of the works, which determines the potential dust emission magnitude (Step 2A); and
- the sensitivity of the area to dust effects (Step 2B).

14.4.6 These two factors are combined in Step 2C, which is to determine the risk of dust impacts with no mitigation applied. The risk categories assigned to the site may be different for each of the four potential sources of dust (demolition, earthworks, construction and trackout).

#### Step 2A – Define the Potential Dust Emission Magnitude

14.4.7 Dust emission magnitude is defined as either 'Small', 'Medium', or 'Large'. The IAQM guidance explains that this classification should be based on professional judgement, but provides the examples in Table 14.4.1.

**Table 14.4.1: Examples of How the Dust Emission Magnitude Class May be Defined**

Class	Examples
Demolition	

<sup>24</sup> IAQM (2024), Guidance on the Assessment of Dust from Demolition and Construction v2.2, Available: <http://iaqm.co.uk/guidance/>

Class	Examples
Large	Total building volume >75,000m <sup>3</sup> , potentially dusty construction material (e.g. concrete), on site crushing and screening, demolition activities >12m above ground level
Medium	Total building volume 12,000m <sup>3</sup> – 75,000m <sup>3</sup> , potentially dusty construction material, demolition activities 6-12m above ground level
Small	Total building volume <12,000m <sup>3</sup> , construction material with low potential for dust release (e.g. metal cladding or timber), demolition activities <6m above ground, demolition during wetter months
<b>Earthworks</b>	
Large	Total site area >110,000m <sup>2</sup> , potentially dusty soil type (e.g. clay, which will be prone to suspension when dry to due small particle size), >10 heavy earth moving vehicles active at any one time, formation of bunds >6m in height.
Medium	Total site area 18,000m <sup>2</sup> – 110,000m <sup>2</sup> , moderately dusty soil type (e.g. silt), 5-10 heavy earth moving vehicles active at any one time, formation of bunds 3m – 6m in height.
Small	Total site area <18,000m <sup>2</sup> , soil type with large grain size (e.g. sand), <5 heavy earth moving vehicles active at any one time, formation of bunds <3m in height.
<b>Construction</b>	
Large	Total building volume >75,000m <sup>3</sup> , on site concrete batching; sandblasting
Medium	Total building volume 12,000m <sup>3</sup> – 75,000m <sup>3</sup> , potentially dusty construction material (e.g. concrete), on site concrete batching
Small	Total building volume <12,000m <sup>3</sup> , construction material with low potential for dust release (e.g. metal cladding or timber)
<b>Trackout <sup>a</sup></b>	
Large	>50 HDV (>3.5t) outward movements in any one day, potentially dusty surface material (e.g. high clay content), unpaved road length >100m
Medium	20-50 HDV (>3.5t) outward movements in any one day, moderately dusty surface material (e.g. high clay content), unpaved road length 50m – 100m
Small	<20 HDV (>3.5t) outward movements in any one day, surface material with low potential for dust release, unpaved road length <50m

<sup>a</sup> These numbers are for vehicles that leave the site after moving over unpaved ground.

## Step 2B – Define the Sensitivity of the Area

14.4.8 The sensitivity of the area is defined taking account of a number of factors:

- the specific sensitivities of receptors in the area;
- the proximity and number of those receptors;
- in the case of PM<sub>10</sub>, the local background concentration; and
- site-specific factors, such as whether there are natural shelters to reduce the risk of wind-blown dust.

- 14.4.9 The first requirement is to determine the specific sensitivities of local receptors. The IAQM guidance recommends that this should be based on professional judgment, taking account of the principles in Table 14.4.2. These receptor sensitivities are then used in the matrices set out in Table 14.4.3, Table 14.4.4 and Table 14.4.5 to determine the sensitivity of the area. Finally, the sensitivity of the area is considered in relation to any other site-specific factors, such as the presence of natural shelters etc., and any required adjustments to the defined sensitivities are made.

### Step 2C – Define the Risk of Impacts

- 14.4.10 The dust emission magnitude determined at Step 2A is combined with the sensitivity of the area determined at Step 2B to determine the risk of impacts with no mitigation applied. The IAQM guidance provides the matrix in Table 14.4.6 as a method of assigning the level of risk for each activity.

### STEP 3: Determine Site-specific Mitigation Requirements

- 14.4.11 The IAQM guidance provides a suite of recommended and desirable mitigation measures which are organised according to whether the outcome of Step 2 indicates a low, medium, or high risk. The list provided in the IAQM guidance has been used as the basis for the requirements set out in Appendix 14.5.

### STEP 4: Determine Significant Effects

- 14.4.12 The IAQM guidance does not provide a method for assessing the significance of effects before mitigation, and advises that pre-mitigation significance should not be determined. With appropriate mitigation in place, the IAQM guidance is clear that the residual effect will normally be 'not significant'.
- 14.4.13 The IAQM guidance recognises that, even with a rigorous dust management plan in place, it is not possible to guarantee that the dust mitigation measures will be effective all of the time, for instance under adverse weather conditions. The local community may therefore experience occasional, short-term dust annoyance. The scale of this would not normally be considered sufficient to change the conclusion that the effects will be 'not significant'.

**Table 14.4.2: Principles to be Used When Defining Receptor Sensitivities**

Class	Principles	Examples
<b>Sensitivities of People to Dust Soiling Effects</b>		
High	users can reasonably expect enjoyment of a high level of amenity; or the appearance, aesthetics or value of their property would be diminished by soiling; and the people or property would reasonably be expected to be present continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land	dwelling, museum and other culturally important collections, medium- and long-term car parks and car showrooms
Medium	users would expect to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home; or the appearance, aesthetics or value of their property could be diminished by soiling; or the people or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land	parks and places of work
Low	the enjoyment of amenity would not reasonably be expected; or there is property that would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling; or there is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land	playing fields, farmland (unless commercially-sensitive horticulture), footpaths, short term car parks and roads
<b>Sensitivities of People to the Health Effects of PM<sub>10</sub></b>		
High	locations where members of the public may be exposed for eight hours or more in a day	residential properties, hospitals, schools and residential care homes
Medium	locations where the people exposed are workers, and where individuals may be exposed for eight hours or more in a day.	may include office and shop workers, but will generally not include workers occupationally exposed to PM <sub>10</sub>
Low	locations where human exposure is transient	public footpaths, playing fields, parks and shopping streets
<b>Sensitivities of Receptors to Ecological Effects</b>		
High	locations with an international or national designation and the designated features may be affected by dust soiling; or locations where there is a community of a particularly dust sensitive species	Special Areas of Conservation with dust sensitive features

Class	Principles	Examples
Medium	locations where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown; or locations with a national designation where the features may be affected by dust deposition	Sites of Special Scientific Interest with dust sensitive features
Low	locations with a local designation where the features may be affected by dust deposition	Local Nature Reserves with dust sensitive features

**Table 14.4.3: Sensitivity of the Area to Dust Soiling Effects on People and Property<sup>25</sup>**

Receptor Sensitivity	Number of Receptors	Distance from the 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 14.4.4: Sensitivity of the Area to Human Health Effects<sup>25</sup>**

Receptor Sensitivity	Annual Mean PM <sub>10</sub>	Number of Receptors	Distance from the Source (m)			
			<20	<50	<100	<250
High	>32µg/m <sup>3</sup>	>100	High	High	High	Medium
		10-100	High	High	Medium	Low
		1-10	High	Medium	Low	Low
	28-32µg/m <sup>3</sup>	>100	High	High	Medium	Low
		10-100	High	Medium	Low	Low
		1-10	High	Medium	Low	Low
	24-28µg/m <sup>3</sup>	>100	High	Medium	Low	Low
		10-100	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	<24µg/m <sup>3</sup>	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low

<sup>25</sup> For demolition, earthworks and construction, distances are taken either from the dust source or from the boundary of the site. For trackout, distances are measured from the sides of roads used by construction traffic. Without mitigation, trackout may occur from roads up to 250m, as measured from the site exit. The impact declines with distance from the site, and it is only necessary to consider trackout impacts up to 50m from the edge of the road.



Receptor Sensitivity	Annual Mean PM <sub>10</sub>	Number of Receptors	Distance from the Source (m)			
			<20	<50	<100	<250
Medium	>32µg/m <sup>3</sup>	>10	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	28-32µg/m <sup>3</sup>	>10	Medium	Low	Low	Low
		1-10	Low	Low	Low	Low
	24-28µg/m <sup>3</sup>	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
	<24µg/m <sup>3</sup>	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low

Table 14.4.5: Sensitivity of the Area to Ecological Effects <sup>25</sup>

Receptor Sensitivity	Distance from the Source (m)	
	<20	<50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

Table 14.4.6: Defining the Risk of Dust Impacts

Sensitivity of the 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			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible
Construction			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk

Sensitivity of the Area	Dust Emission Magnitude		
	Large	Medium	Small
Low	Low Risk	Low Risk	Negligible
Trackout			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible



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