



**DOGGER BANK  
TEESSIDE A & B**

**March  
2014**

# **Environmental Statement Chapter 30 Appendix A Construction Phase Dust Assessment**

**Application Reference: 6.30.1**

Cover photograph: Indicative image showing installation of meteorological mast within the Dogger Bank Zone

# 1 Construction Phase Dust Assessment

## 1.1 Step one: screening the need for a detailed assessment

1.1.1 An assessment will normally be required where there are sensitive receptors within 350m of the site boundary and/or within 100m of the route(s) used by construction vehicles on the public highway, up to 500m from the site entrance(s). Where the need for a more detailed assessment is screened out, it can be concluded that the level of risk is “negligible”.

## 1.2 Step two: assess the risk of dust effects arising

1.2.1 A dust emission class was determined for each of the three identified activities (earthworks, construction and trackout) using the criteria detailed in **Table A1**.

Table A1 Criteria used in the determination of dust emission class

| Activity     | Criteria used to Determine Dust Emission Class         |  |  |
|--------------|--|--|--|
|              | Small  | Medium   | Large  |
| Earthworks   | Total site area <2,500m <sup>2</sup>                   | Total site area 2,500 – 10,000m <sup>2</sup>                 | Total site area >10,000m <sup>2</sup>                    |
| Construction | Total building volume <25,000m <sup>3</sup>            | Total building volume 25,000 – 100,000m <sup>3</sup>         | Total building volume >100,000m <sup>3</sup>             |
| Trackout     | <25 HDV trips in any one day, unpaved road length <50m | 25-100 HDV trips in any one day, unpaved road length 50-100m | >100 HDV trips in any one day, unpaved road length >100m |

1.2.2 **Table A2** to **Table A3** below displays the risk categories for the potential dust and PM<sub>10</sub> impacts from demolition; earthworks; general construction activities and trackout. They assume that no mitigation measures are applied and are dependent on the available information on the construction phase of works and professional judgement. The risk categories should be used as guidance for determining the level of mitigation to be applied.

### Earthworks and construction activities

1.2.3 The potential dust emission class determined above should be used in the matrix in **Table A2** to determine the earthworks and construction activities risk categories with no mitigation applied (high, low or medium risk) based on the distance to the nearest receptors.

**Table A2 Risk category from earthworks and construction activities**

| Distance to Nearest Receptor (m) * |            | Dust Emission Class |                  |                  |
|------------------------------------|------------|---------------------|------------------|------------------|
| Dust Soiling and PM <sub>10</sub>  | Ecological | Large               | Medium           | Small            |
| < 20                               | -          | High Risk Site      | High Risk Site   | Medium Risk Site |
| 20 – 50                            | -          | High Risk Site      | Medium Risk Site | Low Risk Site    |
| 50 - 100                           | < 20       | Medium Risk Site    | Medium Risk Site | Low Risk Site    |
| 100 – 200                          | 20 – 40    | Medium Risk Site    | Low Risk Site    | Negligible       |
| 200 - 350                          | 40 – 100   | Low Risk Site       | Low Risk Site    | Negligible       |

\* Distance from dust emission source. Where this is not known then the distance should be taken from the site boundary. The risk is therefore based on the distance to the nearest receptor.

## Trackout activities

- 1.2.4 Factors which determine the magnitude class are vehicle size, vehicle speed, vehicle numbers, geology and duration of trackout activities. As with all other potential sources, professional judgement must be applied when classifying trackout into one of the magnitude categories. Only receptors within 100m of the route(s) used by vehicles on the public highway and up to 500m from the site entrance(s) are considered to be at risk and the risk classification distances shown to reflect this.
- 1.2.5 The number of Heavy Duty Vehicle (HDV) trips stated in **Table A1** is for vehicles that leave the site after moving over unpaved ground, where they will accumulate mud and dirt that can be tracked out onto the public highway.
- 1.2.6 These potential dust emission class determined above should be used in the matrix in **Table A3** to determine the trackout risk category with no mitigation applied.

**Table A3 Risk categories from trackout activities**

| Distance to Nearest Receptor (m) * |            | Dust Emission Class |                  |                  |
|------------------------------------|------------|---------------------|------------------|------------------|
| Dust Soiling and PM <sub>10</sub>  | Ecological | Large               | Medium           | Small            |
| < 20                               | -          | High Risk Site      | Medium Risk Site | Medium Risk Site |
| 20 – 50                            | < 20       | Medium Risk Site    | Medium Risk Site | Low Risk Site    |
| 50 - 100                           | 20 - 100   | Low Risk Site       | Low Risk Site    | Negligible       |

\* For the trackout, the distance is from the roads used by construction traffic.

- 1.2.7 There is an extra dimension to the assessment of trackout, as the distance over which it might occur depends on the site. As general guidance, significant trackout may occur up to 500m from large sites, 200m from medium sites and 50m from small sites, as measured from the site exit. These distances assume no site-specific mitigation.

1.2.8 The ‘distance to receptor’ in **Table A3** relates to the distance from the road where mud may be deposited. Therefore in determining the risk from trackout, both distances need to be taken into account.

### 1.3 Step three: identification of site specific mitigation

1.3.1 Having determined the risk categories for each of the four activities it is possible to determine the site-specific measures to be adopted. These measures will be related to whether the site is a low, medium or high risk site.

### 1.4 Step four: define effects and their significance

1.4.1 The significance is best determined using professional judgement, taking account of the factors that define the sensitivity of the surrounding area (see Section 3) and the overall pattern of potential risks. The sensitivity of the area needs to be defined.

1.4.2 The sensitivity of the area surrounding the construction / demolition site is combined with the risk of the site giving rise to dust effects (from Step Two) to define the significance of the effects for each of the four activities (demolition, earthworks, construction and trackout).

1.4.3 The preference in the IAQM guidance is to assign significance to the impact with mitigation. The residual effects for most sites will be negligible, as shown in **Table A4**.

1.4.4 When assessment of the significance of the effects without mitigation is required, the recommended significance criteria in **Table A5** should be used.

1.4.5 The final step is to determine the overall significance of the effects arising from the construction phase of the proposed development. This is based on professional judgement but should take account of the significance of the effects for each of the four activities.

1.4.6 **Table A6** and **Table A7** contain the construction phase assessment matrix carried out as part of this assessment.

**Table A4** Significance of effects of each activity with mitigation

| Sensitivity of Area | Risk of Site Giving Rise to Dust Effects |                |            |
|---------------------|--|----------------|------------|
|                     | High                                     | Medium         | Low        |
| Very High           | Slight Adverse                           | Slight Adverse | Negligible |
| High                | Slight Adverse                           | Negligible     | Negligible |
| Medium              | Negligible                               | Negligible     | Negligible |
| Low                 | Negligible                               | Negligible     | Negligible |

**Table A5**      Significance of effects of each activity without mitigation

| Sensitivity of Area | Risk of Site Giving Rise to Dust Effects |                  |                  |
|---------------------|--|------------------|------------------|
|                     | High                                     | Medium           | Low              |
| Very High           | Substantial Adverse                      | Moderate Adverse | Moderate Adverse |
| High                | Moderate Adverse                         | Moderate Adverse | Slight Adverse   |
| Medium              | Moderate Adverse                         | Slight Adverse   | Negligible       |
| Low                 | Slight Adverse                           | Negligible       | Negligible       |

**Table A6 Construction phase assessment matrix – Dogger Bank Teesside A or B in isolation (single project)**

| Receptor Location <sup>1</sup> | Sensitivity of Receptor | Dust Emission Class (DEC) <sup>2</sup> |        |  | Risk Classification <sup>3</sup> | Risk of Site giving rise to Dust Effects <sup>4</sup> |                  |                  |            |
|--------------------------------|-------------------------|--|--------|--|----------------------------------|---|------------------|------------------|------------|
|                                |                         | Source Activity                        | DEC    | Justification  |                                  | Before Mitigation                                     |                  | After Mitigation |            |
|                                |                         |  |        |  |                                  | Significance  | Overall          | Significance     | Overall    |
| <b>Human Receptors</b>         |                         |  |        |  |                                  |   |                  |                  |            |
| D1 Bydales School              | Medium                  | <b>Earthworks</b>                      | Medium | <ul style="list-style-type: none"> <li>• Receptor D4 is less than 20m from the cable corridor working area.</li> <li>• DEC medium for all earthworks activities as:                             <ul style="list-style-type: none"> <li>- Total material moved during open cut trenching, removal of topsoil and subsoil for temporary access road, and backfilling and reinstatement (HVDC cable route) = 20,000 - 100,000 tonnes;</li> <li>- Total construction space primary site compounds = 2,500 –</li> </ul> </li> </ul> | High Risk Site                   | Moderate Adverse                                      | Moderate Adverse | Negligible       | Negligible |
| D2 Woodford Close              |                         |  |        |  |                                  |   |                  |                  |            |
| D3 De Havilland Drive          |                         |  |        |  |                                  |   |                  |                  |            |
| D4 Simmons Nurseries           |                         |  |        |  |                                  |   |                  |                  |            |
| D5 Cleveland View              |                         |  |        |  |                                  |   |                  |                  |            |
| D6 Tunstall Gardens            |                         |  |        |  |                                  |   |                  |                  |            |
| D7 Grange Estate               |                         |  |        |  |                                  |   |                  |                  |            |

| Receptor Location <sup>1</sup> | Sensitivity of Receptor | Dust Emission Class (DEC) <sup>2</sup> |       |  | Risk Classification <sup>3</sup> | Risk of Site giving rise to Dust Effects <sup>4</sup> |         |                  |         |
|--------------------------------|-------------------------|--|-------|--|----------------------------------|---|---------|------------------|---------|
|                                |                         | Source Activity                        | DEC   | Justification  |                                  | Before Mitigation                                     |         | After Mitigation |         |
|                                |                         |  |       |  |                                  | Significance  | Overall | Significance     | Overall |
|                                |                         |  |       | 10,000m <sup>2</sup><br>- Total site area for onshore converter station = >10,000m <sup>2</sup> .  |                                  |   |         |                  |         |
|                                |                         | <b>Construction</b>                    | Large | <ul style="list-style-type: none"> <li>Receptor D7 is 320 from substation construction area.</li> <li>DEC large for construction activities as total converter station building volume &gt;100,000m<sup>3</sup></li> </ul>   | Low Risk Site                    | Negligible  |         | Negligible       |         |
|                                |                         | <b>Trackout</b>                        | Large | <ul style="list-style-type: none"> <li>There are a number of receptors located less than 20m from routes used by construction vehicles on the public highway.</li> <li>There are more than 100 HGV trips per day.</li> </ul> | High Risk Site                   | Moderate Adverse                                      |         | Negligible       |         |

<sup>1</sup> See Table A3

<sup>2</sup> See Table A1

<sup>3</sup> See Table A2 to Table A4

<sup>4</sup> See Table A5



Table A7 Construction phase assessment matrix – Dogger Bank Teesside A & B concurrently (two projects)

| Receptor Location <sup>1</sup> | Sensitivity of Receptor | Dust Emission Class (DEC) <sup>2</sup> |       |  | Risk Classification <sup>3</sup> | Risk of Site giving rise to Dust Effects <sup>4</sup> |                  |                  |            |
|--------------------------------|-------------------------|--|-------|--|----------------------------------|---|------------------|------------------|------------|
|                                |                         | Source Activity                        | DEC   | Justification  |                                  | Before Mitigation                                     |                  | After Mitigation |            |
|                                |                         |  |       |  |                                  | Significance  | Overall          | Significance     | Overall    |
| <b>Human Receptors</b>         |                         |  |       |  |                                  |   |                  |                  |            |
| D1 Bydales School              | Medium                  | Earthworks                             | Large | <ul style="list-style-type: none"> <li>• Receptor D4 is less than 20m from the cable corridor working area.</li> <li>• DEC large for all earthworks activities as:</li> <li>• Total material moved during open cut trenching, removal of topsoil and subsoil for temporary access road, and backfilling and reinstatement (HVDC cable route) = &gt;100,000 tonnes;</li> <li>• Total construction space primary site compounds = 2,500 –</li> </ul> | High Risk Site                   | Moderate Adverse                                      | Moderate Adverse | Negligible       | Negligible |
| D2 Woodford Close              |                         |  |       |  |                                  |   |                  |                  |            |
| D3 De Havilland Drive          |                         |  |       |  |                                  |   |                  |                  |            |
| D4 Simmons Nurseries           |                         |  |       |  |                                  |   |                  |                  |            |
| D5 Cleveland View              |                         |  |       |  |                                  |   |                  |                  |            |
| D6 Tunstall Gardens            |                         |  |       |  |                                  |   |                  |                  |            |
| D7 Grange Estate               |                         |  |       |  |                                  |   |                  |                  |            |

| Receptor Location <sup>1</sup> | Sensitivity of Receptor | Dust Emission Class (DEC) <sup>2</sup> |       |  | Risk Classification <sup>3</sup> | Risk of Site giving rise to Dust Effects <sup>4</sup> |         |                  |         |
|--------------------------------|-------------------------|--|-------|--|----------------------------------|---|---------|------------------|---------|
|                                |                         | Source Activity                        | DEC   | Justification  |                                  | Before Mitigation                                     |         | After Mitigation |         |
|                                |                         |  |       |  |                                  | Significance  | Overall | Significance     | Overall |
|                                |                         |  |       | 10,000m <sup>2</sup><br>• Total site area for onshore converter station = >10,000m <sup>2</sup> .  |                                  |   |         |                  |         |
|                                |                         | <b>Construction</b>                    | Large | • Receptor D7 is 320 from substation construction area.<br>• DEC large for construction activities as total converter station building volume >100,000m <sup>3</sup>     | Low Risk Site                    | Negligible  |         | Negligible       |         |
|                                |                         | <b>Trackout</b>                        | Large | • There are a number of receptors located less than 20m from routes used by construction vehicles on the public highway.<br>• There are more than 100 HGV trips per day. | High Risk Site                   | Moderate Adverse                                      |         | Negligible       |         |

<sup>1</sup> See Table A3

<sup>2</sup> See Table A1

<sup>3</sup> See Table A2 to Table A4

<sup>4</sup> See Table A5