

**DUST EMISSIONS MANAGEMENT PLAN**  
**BILLET ROAD**  
**ROMFORD**  
**BELLWAY HOMES LTD**  
**DEMP-21912S-24-112**  
**APRIL 2024**



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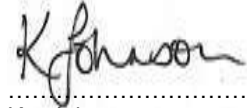
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**SECTION 1 INTRODUCTION**

- 1.1 IDOM Merebrook (IDOM) has been commissioned by Bellway Homes Ltd (Bellway), to prepare a Dust Emissions Management Plan (DEMP) in relation to enabling works being undertaken at Billet Road in Romford to create a working platform for future residential development.
- 1.2 The enabling works have been granted planning permission by the London Borough of Redbridge (LBR) under planning reference 3376/22. An Environmental Permit (EP) is also required for the work which requires the importation of clean, uncontaminated material to raise existing site levels by circa two metres. The EP application reference for the works is EPR/JP3329SH/A001 and this DEMP is submitted in support of the application.
- 1.3 This DEMP has been prepared in accordance with Environment Agency (EA) guidance to assess risks to surrounding sensitive receptors and provide details of measures which will be implemented to ensure impacts are minimised as far as reasonably practicable.
- 1.4 This DEMP is also considered suitable to satisfy the requirements of condition 8 of the planning permission which states:
- ‘Prior to the commencement of development, a Dust Management Plan (DMP) including but not limited to monitoring locations and the types of monitors that will be used for fugitive emissions shall be submitted to and approved by the Local Planning Authority. This plan should include details of mitigation measures for dust and emissions during demolition and construction along with a real-time monitoring regime for the same’.
- 1.5 Ultimate responsibility for implementation of, and compliance with, the measures outlined in this DEMP will be the responsibility of the Site Manager.
- 1.6 This DEMP forms an appendix to the site Environmental Management System (EMS), a copy of which will be available on site at all times. All operational staff will be made aware of its location and requirements during the site induction.

**SECTION 2 SITE DESCRIPTION**

- 2.1 **SITE CONTEXT**
- 2.1.1 The site is located to the south of Billet Road, Little Heath, RM6 5SX, approximately 4 km west of the centre of Romford.
- 2.1.2 The site occupies an area of approximately 10.33 hectares located at National Grid Reference <sup>5</sup>47317, <sup>1</sup>89499. The site boundary is indicated on drawing ref. 21912s-001-001, presented in Appendix 1 of this report.
- 2.1.3 The site is irregular in shape and is partly bounded to the north by Billet Road, beyond which is agricultural land associated with Red House Farm. A commercial

premises (RM5 Auto Electrics) can also be identified on aerial imagery but it is unclear whether the business is still trading. The northwestern portion of the site comprises an industrial and commercial mixed-use area. This area is occupied by a workshop, a scaffolding company, a car maintenance and storage company, a hydrotherapy business, a kennel and cattery and a residential property.

- 2.1.4 Extensive residential development is present to the east of the site and a number of dwellings are also present adjacent to Billet Road to the northwest. Little Heath School is located approximately 240 m to the west and a sports ground is present immediately to the southwest. Open ground is present immediately to the south with the A12, Eastern Avenue beyond (150-180 m from the southern site boundary).

## 2.2 BASELINE CONDITIONS

- 2.2.1 The site is located within a whole-borough Air Quality Management Area (AQMA) which has been declared by LBR in respect of annual mean NO<sub>2</sub> and PM<sub>10</sub> concentrations.
- 2.2.2 Reference has been made to the DEFRA background air pollutant concentration maps available on the UK-AIR website<sup>1</sup>. The background maps are presented in 1 km x 1 km grid squares across England, Wales, Scotland and Northern Ireland. The current version of the background maps (reference year 2018) contains estimates for NO<sub>x</sub>, NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> for the period 2018 through to 2030.
- 2.2.3 The 2018 reference year background maps are based on monitoring and meteorological data for 2018. Predicted background concentrations for the reference year (2018) and current year (2024) are summarised in the table below.

Table 1: Predicted annual mean background map concentrations for grid square centred at <sup>5</sup>47500, 189500.

Pollutant	Annual Mean Concentration (µg.m <sup>-3</sup> )		
	2018	2024	AQO
NO <sub>2</sub>	20.15	15.67	<b>40</b>
PM <sub>10</sub>	18.01	16.35	<b>40</b>
PM <sub>2.5</sub>	11.80	10.80	<b>12</b>

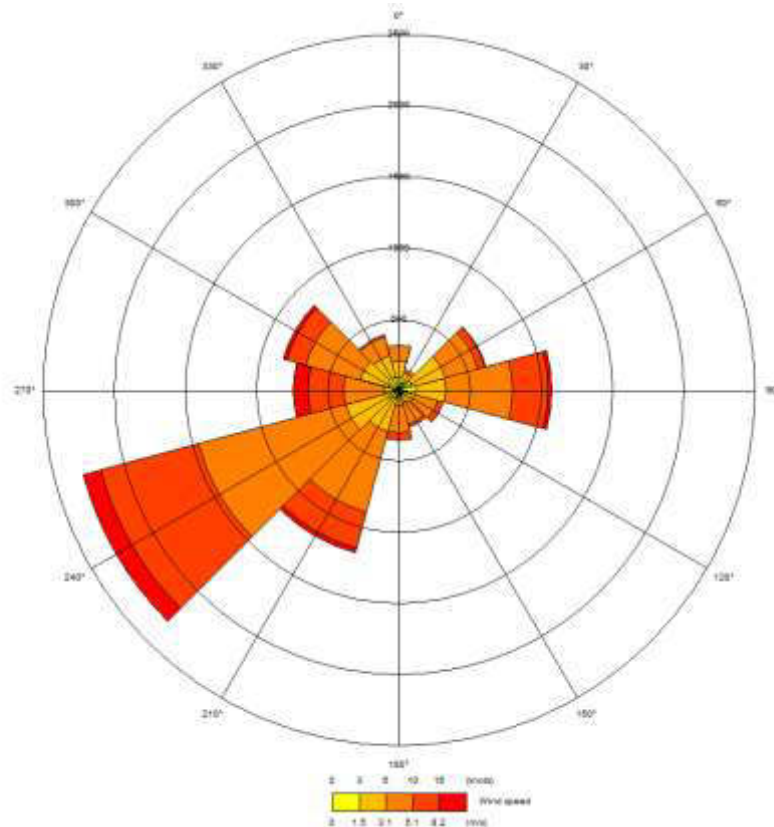
## 2.3 METEOROLOGICAL CONDITIONS

- 2.3.1 Data was acquired from ADM Ltd for the weather station at London City Airport situated approximately 10.3 km to the southwest which is considered to be adequately representative of the subject site.

<sup>1</sup> <https://uk-air.defra.gov.uk/data/laqm-background-home>

- 2.3.2 A wind rose illustrating the average wind direction and strength during 2019 is presented in Figure 1 below. This indicates that the strongest and most frequent winds are from the southwest which is typical for much of the UK.

Figure 1: Windrose for 2019 London City Airport Meteorological station



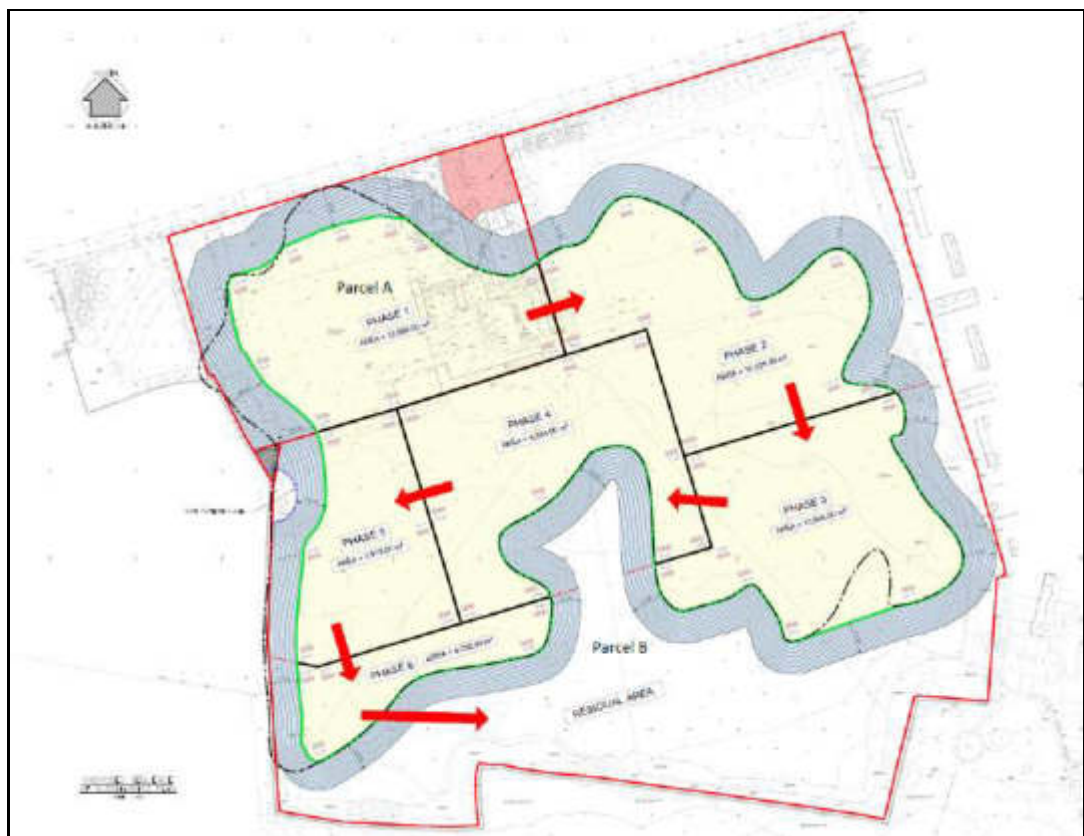
### SECTION 3 DESCRIPTION OF ACTIVITIES

- 3.1 The proposed development comprises enabling works (ground stabilisation and levelling) across the site. Works are expected to commence in June 2024 and last for 52 weeks.
- 3.2 The site currently sits at a low level, with very shallow groundwater. During the winter months, parts of the site are inundated and very soft. Therefore, it is proposed to raise site levels to provide a suitable development platform for the proposed housing project.
- 3.3 The existing levels will be raised by circa two metres, requiring an import of circa 141,000 cubic metres of clean soils. The proposals to raise the site levels have been included as part of the planning submission.
- 3.4 There are no surplus soils on site and site-won soil is unlikely to be suitable for re-use. Therefore, the land raise will be formed from imported soils. The source of these is yet to be determined, however, the imported fill will be clean, uncontaminated soil

from construction projects. This may include construction works from HS2 and other large infrastructure projects within London.

- 3.5 Based on the amount of material required to be imported and the expected duration of works, the number of wagons accessing the site is estimated to be an average of 75 per day (based on 5 days per week).
- 3.6 An element of surcharging will be required to manage future settlement, but the surcharge will be retained on site as part of the development platform. The surcharge will be transferred around the site using a phased approach, i.e. surcharge will be applied to Phase 1 (once levels have been raised) whilst levels are raised on Phase 2. Once filling of Phase 2 is complete, surcharge will be moved from Phase 1 to Phase 2 whilst Phase 3 is filled and so on. At the end of the works, the surcharge will be moved to the south of the site where it will be used to create a more gradually sloping landform towards the southern boundary.

Figure 2: Sequence of Works



- 3.7 As the surcharge is placed on each phase it will be sealed (compacted with an excavator bucket) to reduce the risk of dust being liberated from the surface. Band-drains will be installed to speed up the settlement process and manage the potential for creep settlement.

- 3.8 Raising site levels also enables a viable drainage strategy to be adopted, with services installed above the level of the shallow groundwater. Furthermore, the aim of the land raise is to prevent contact or disturbance of the underlying soils during construction.
- 3.9 The following is a summary of the sequence of works to be carried out:
- Hoarding Erection;
  - Formation of Vehicular and Pedestrian Accesses;
  - Establishment of Temporary Services and Basic Welfare Facilities;
  - Enabling Works comprising:
    - Construction of an Inground Barrier;
    - Formation of a Development Platform;
    - Formation of a Drainage Blanket;
    - Installation of Vertical Band Drains and Sumps;
    - Surcharge Period.

#### **SECTION 4 ROLES AND RESPONSIBILITIES**

- 4.1 The Principal Contractor's Site Manager will have overall responsibility for the day-to-day environmental management of the site and ensuring that the requirements of the DEMP are fulfilled.
- 4.2 Overall responsibility for the environmental management of the site will sit with Thomas Pugh, the Technically Competent Manager named on the EP application who will make regular visits to the site.

#### **SECTION 5 AIR EMISSIONS RISK ASSESSMENT**

##### **5.1 POLLUTANTS OF CONCERN**

- 5.1.1 Oxides of nitrogen (NO<sub>x</sub>) are emitted by combustion processes (including vehicle exhausts), mostly in the form of the less harmful nitrogen oxide (NO). This is converted in the atmosphere to NO<sub>2</sub>. The amount of NO<sub>2</sub> produced depends on a number of factors, including the presence of other pollutants (particularly ozone) and meteorological conditions. It therefore varies considerably over time and geographical area. However, the relative contribution of various sources to the resulting ambient concentrations of NO<sub>2</sub> can generally be assumed to be in proportion to their emissions of NO<sub>x</sub>.
- 5.1.2 PM<sub>10</sub> comprises the proportion of airborne particulate matter that is less than 10 microns (µm) in diameter. This includes fine particles of less than 2.5 µm diameter



(PM<sub>2.5</sub>), which can penetrate deeper into the lungs than coarser particles and are becoming increasingly associated with the health effects of particulate pollution.

- 5.1.3 Fine particles are emitted by combustion processes, non-exhaust traffic-related emissions (tyre and brake wear) and also include secondary particles, which are formed in the atmosphere by chemical reactions between other pollutants. The sources of secondary particles can be very distant and include areas outside the UK. The coarser fraction of PM<sub>10</sub> originates primarily from non-combustion sources.

## 5.2 **POTENTIAL AIR QUALITY IMPACTS**

- 5.2.1 Dust emissions can vary substantially from day to day, depending on the level of activity, the specific operations being undertaken, and the weather conditions. A significant proportion of dust emissions may result from site plant and road vehicles moving over temporary roads and open ground. If mud is allowed to get onto local roads, dust emissions can occur at some distance from the originating site. The scale of these impacts depends on site conditions, effective planning of site works, dust suppression and other mitigation measures applied.

- 5.2.2 In terms of effects, site works may give rise to annoyance due to the soiling of surfaces by dust. Very high levels of soiling also has the potential to damage plants and affect the diversity of ecosystems. Additionally, there is evidence of major construction sites increasing long term particulate matter concentrations. Exposure to PM<sub>10</sub> has long been associated with a range of health effects, with an increasing focus on the smallest particles such as PM<sub>2.5</sub> and smaller.

- 5.2.3 The main air quality impacts that may arise during the enabling works are identified as:

- dust deposition, resulting in the soiling of surfaces;
- visible dust plumes;
- elevated PM<sub>10</sub> and PM<sub>2.5</sub> concentrations; and
- an increase in concentrations of airborne particles and nitrogen dioxide (NO<sub>2</sub>) due to exhaust emissions from vehicles and equipment used on site (non-road mobile machinery) and vehicles accessing the site.

- 5.2.4 Dust soiling will arise from the deposition of dust and this is most relevant to disamenity, rather than health effects. The primary source of the smallest particles (PM<sub>2.5</sub>) is likely to be related to the use of non-road mobile machinery (NRMM) where not properly controlled.

- 5.2.5 The risk of dust emissions from a construction site causing loss of amenity and/or health or ecological impacts (and effects) is related to:

- the activities being undertaken (number of vehicles and plant etc.);

- the duration of these activities;
  - the size of the site;
  - the meteorological conditions (wind speed, direction and rainfall);
  - the proximity of receptors to the activities
  - the adequacy of the mitigation measures applied to reduce or eliminate dust; and
  - the sensitivity of the receptors to dust.
- 5.2.6 The quantity of dust emitted from site operations will be related to the area of land being worked and the level of activity (nature, magnitude and duration). Emissions from construction vehicles passing over unpaved ground can be particularly important. These will be related to the silt content of the soil (defined by the US Environmental Protection Agency as particles smaller than 75 micrometres [ $\mu\text{m}$ ] in diameter), as well as the speed and weight of the vehicle, the soil moisture content, the distance covered and the frequency of vehicle movements.
- 5.2.7 The wind direction, wind speed and rainfall, at the time when a construction activity is taking place, will also influence whether there is likely to be a dust impact. Due to the variability of the weather, it is impossible to predict what the weather conditions will be when specific construction activities are being undertaken. Local wind speed and direction influences the dispersion of dust. This will depend on the frequency that the receptor is downwind and the distance of the receptors from the construction activities. Higher wind speeds will result in the highest potential for release of dust from a site. Buildings, structures and trees can also influence dispersion.
- 5.2.8 Adverse impacts can occur in any direction from a site. They are, however, more likely to occur downwind of the prevailing wind direction and/or close to the site. It should be noted that the 'prevailing' wind direction is usually the most frequent direction over a long period such as a year; whereas construction activity may occur over a period of weeks or months during which the most frequent wind direction might be quite different. The most frequent wind direction may also not be the direction from which the wind speeds are highest. The use of the prevailing wind direction in the assessment of risk is most useful, therefore, for construction projects of long duration. Dust impacts are more likely to occur during drier periods, as rainfall acts as a natural dust suppressant.
- 5.2.9 Local conditions will also influence the potential for dust impacts. Topography and natural barriers (e.g. woodland) will reduce airborne concentrations due to impaction. In addition, if the locality has a history of dust generating activities, such as quarrying, a given level of additional dust may be more acceptable, i.e. more readily tolerated, than in a suburban residential area. Alternatively, impacts may be less acceptable, where nearby residents have become sensitised to dust, have a history of complaining and may therefore be more likely to complain about a new dust source.

Similarly, in rural areas agricultural activities may generate dust and this should be taken into account in the assessment of risk.

- 5.2.10 The risk of PM exceedances will be greatest at receptors very close to the site boundary, especially if combined with PM from a major road, or other source.

### 5.3 RECEPTOR SENSITIVITY

- 5.3.1 Receptor sensitivities have been defined in accordance with IAQM guidance on the assessment of dust from demolition and construction<sup>2</sup>.

#### Dust Soiling Effects

- 5.3.2 The sensitivity of receptors to dust soiling effects is dependent upon the duration and frequency that people would expect to be exposed to the effects. Residential receptors can be expected to enjoy a high level of amenity and background levels of dust soiling are expected to be low. It can be expected that dust soiling would diminish the aesthetics of their property and such receptors are therefore assessed as being of high sensitivity. Residential properties, schools, nurseries and care homes are considered to be of high sensitivity for the purpose of this assessment.

- 5.3.3 Medium sensitivity receptors are those where 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 people or property would not reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land. Places of work and community uses are considered to be of medium sensitivity for the purpose of this assessment.

- 5.3.4 Low sensitivity receptors are those where the enjoyment of amenity would not reasonably be expected or property would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling. Exposure is of a transient nature and 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.

#### Human Health

- 5.3.5 For health effects of PM<sub>10</sub>, sensitivities are based on whether or not the receptor is likely to be exposed to elevated concentrations over a 24-hour period.

- 5.3.6 High sensitivity receptors are those locations where members of the public are exposed over a time period relevant to the air quality objective for PM<sub>10</sub> (eight hours or more in a 24-hour period). Indicative examples include residential properties, hospitals, schools, nurseries and residential care homes.

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<sup>2</sup> Stoaling et al (2024). IAQM Guidance on the assessment of dust from demolition and construction V2.2

- 5.3.7 Workers are considered to be of medium sensitivity for the purpose of this assessment and low sensitivity receptors are those locations where human exposure is transient e.g. public footpaths, playing fields, parks and shopping streets.

#### Ecological Effects

- 5.3.8 An 'ecological receptor' refers to any sensitive habitat affected by dust soiling. this includes the direct impacts on vegetation or aquatic ecosystems of dust deposition, and the indirect impacts on fauna (e.g. on foraging habitats).
- 5.3.9 Dust can have two types of effect on vegetation: physical and chemical. direct physical effects include reduced photosynthesis, respiration and transpiration through smothering. Chemical changes to soils or watercourses may lead to a loss of plants or animals for example via changes in acidity. Indirect effects can include increased susceptibility to stresses such as pathogens and air pollution. These changes are likely to occur only as a result of long-term works adjacent to a sensitive habitat.

#### 5.4 IDENTIFICATION OF SENSITIVE RECEPTORS

- 5.4.1 A number of sensitive receptors have been identified in the vicinity. The IAQM guidance requires assessment of impacts up to 250 m from the site boundary (for works undertaken on the site itself) and up to 250 m from the site exit onto the highway (in relation to trackout impacts). The greatest potential for dust soiling is considered to be within 100 m of dust-generating activities. Key receptors identified within 250 m are summarised in the table below.
- 5.4.2 The locations of these receptors, together with other sensitive receptors within 1 km of the site, are indicated on drawing 21912-309-001 in Appendix 1.

Table 2: Sensitive receptors in the vicinity of the site

Description	Sensitivity		Distance from site boundary	Direction relative to site
	Amenity	Human Health		
Residential dwellings	High	High	Immediately adjacent	East
Residential dwellings	High	High	210 m	South
Residential dwellings	High	High	72 m	West
Care Home	High	High	150 m	Southeast
Care Home	High	High	217 m	Southeast
Little Heath School	High	High	240 m	West
Sports ground	Low	Low	17 m	Southwest

Description	Sensitivity		Distance from site boundary	Direction relative to site
	Amenity	Human Health		
Commercial premises	Low	Medium	46 m	North
Agricultural land	Low	n/a	10 m	North
Major Road (A12)	Low	n/a	160 m	South

5.4.3 The greatest risk of dust impacts is associated with residential development to the east of the site due to the number and proximity of high sensitivity receptors. These receptors are also located downwind of the site relative to the prevailing wind direction.

5.4.4 Although the A12 is considered to be of low sensitivity to dust soiling impacts, discrete, large-scale releases of dust have the potential to cause visibility problems in the absence of mitigation. However, given the distance to the road this is not considered to be a significant concern.

5.4.5 With reference to the Multi-Agency Geographic Information for the Countryside (MAGIC) website<sup>3</sup>, no sensitive ecological receptors have been identified within 1 km of the site.

## 5.5 EMISSIONS SOURCES

### On-site

5.5.2 The following potential dust emissions sources have been identified on site:

- Material dropped/blown from wagons onto public highway during delivery;
- Tipping of incoming material;
- Wind whipping from stockpiled materials;
- Movement of material around site;
- HGV and NRMM exhaust emissions
- Suspension of dust on site as a result of vehicle/plant movements;
- Trackout of mud onto public highway from vehicles leaving site;
- Resuspension on dust from tracked out material on public highway due to passing traffic.

<sup>3</sup> <https://magic.defra.gov.uk/> (accessed 04-04-24)

- 5.5.3 Consideration of the potential for each of these sources to result in adverse impacts is presented in Table A1 in Appendix 2.

Off-site

- 5.5.4 With reference to the Environment Agency (EA) online public register<sup>4</sup>, no Part A processes are permitted within 1 km of the site.
- 5.5.5 With reference to LBR's public register of Part B permits<sup>5</sup> dated 15 March 2024, no potentially dust-generating activities have been identified within 1 km of the site. No Part A2 processes are operated within Redbridge.

## **SECTION 6 MITIGATION MEASURES**

### **6.1 SITE MANAGEMENT**

- 6.1.1 The Site Manager will play an important role on site in managing and maintaining communications between stakeholders, the community and the regulators. Bellway will appoint a representative to be a constant point of contact for any queries and will handle any on-site complaints.
- 6.1.2 It is important to ensure that those sensitive to the impacts are notified and consulted before work commences and that they have an easy and effective mechanism for informing the Site Manager of their concerns and issues. The name and contact details of person(s) accountable for air quality and dust issues will be displayed on the site boundary. This may be the Site or Environment Manager. Contact details for the head or regional office will also be clearly displayed on the site boundary.
- 6.1.3 Where dust is considered to be a risk during a specific site activity, mitigation measures will be included in the task-specific method statement and risk assessment for the work.
- 6.1.4 An adequate water supply for effective dust/particle matter mitigation (using recycled water where possible) will be accessible on-site. No bonfires or burning of waste will be allowed on-site. Full details of control measures are included in Table A2 in Appendix 3. Once the contractor has been appointed, this DEMP will be updated with details of the supply or source of water for damping down, as well as drainage and enclosed areas to prevent contaminated water and mud from leaving the site, as necessary.
- 6.1.5 Monitoring will be undertaken to provide reassurance that the mitigation implemented is operating effectively and to identify occasions when an enhanced level of mitigation (or cessation of works) may be required as detailed in the following section.

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<sup>4</sup> <https://environment.data.gov.uk/public-register/view/search-industrial-installations> (accessed 05-04-24)

<sup>5</sup> <https://www.redbridge.gov.uk/media/12142/2024-lbr-part-b-list.pdf> (accessed 04-04-24)

**SECTION 7 MONITORING****7.1 VISUAL INSPECTIONS**

7.1.1 Responsibility for dust monitoring will be assigned to an appropriately trained and experienced nominated representative.

7.1.2 The nominated representative will inspect the site at least twice daily (morning and afternoon) to ensure that excess dust is not being generated and that the necessary mitigation measures are in place. A site log (daily diary) will be kept recording the daily site checks, monitoring and any action taken in response to unacceptable conditions or complaints relating to dust. The frequency of inspections will be increased when activities with a high potential to produce dust are being carried out or during prolonged dry/windy conditions.

7.1.3 Each inspection shall be recorded on site, detailing the following:

- Date
- Prevailing weather conditions
- Site activities.
- Plant in operation.
- Mitigation measures in place.
- Levels of dust observed

Scoring system for visual inspections

7.1.4 As part of the daily site inspections, the observed levels of dust shall be assessed and recorded using the following scoring system:

A = No Noticeable Dust;

B = Slight Dust (localised to areas of work, with no spread beyond 10 metres from the point of activity);

C = Moderate Dust (some dust visible, but at no more than 20 metres from the point of activity, some mud on the road; and,

D = Unacceptable Dust (visible clouds of dust leaving the site or extensive mud on the road).

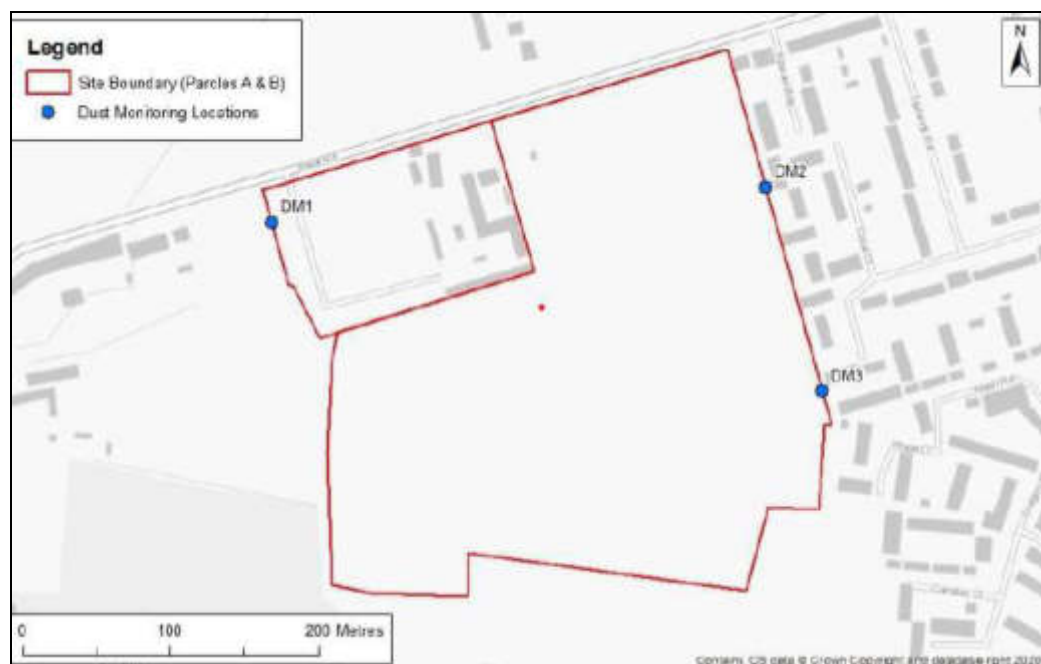
7.1.5 Where visual inspection identifies unacceptable dust generation/deposition or complaints are received, the cause will be identified and control measures will be enhanced in a timely manner, for example using suppressant sprays. If dust levels are uncontrollable, works will be suspended until either sufficient suppression measures can be employed or adverse weather conditions improve.

- 7.1.6 Where the source of dust emissions is identified as being off site, then this shall be recorded. This is particularly pertinent in respect of the agricultural land to the north of the site which is expected to general dust periodically.
- 7.1.7 The nominated person will also carry out a weekly inspection of appropriate surfaces in the vicinity of nearby sensitive receptors within 100 m to ensure that there is no evidence of excessive dust accumulation (e.g. on street furniture, cars, windowsills etc.). Particular attention will be paid to dwellings in close proximity to the eastern site boundary as they are downwind of the site relative to the prevailing wind direction. Street furniture such as signposts and bollards along Billet Road will also be inspected.
- 7.1.8 In addition, the site access and section of road beyond will be inspected regularly throughout the day to ensure that excess material is not being tracked out onto the public highway.
- 7.1.9 Any subsequent remedial action taken will be recorded in the daily log together with any measures employed to prevent a similar event recurring in future.
- 7.1.10 All records will be made available to the EA and LBR upon request.

## 7.2 CONTINUOUS MONITORING

- 7.2.1 Real-time PM<sub>10</sub> continuous monitoring will be undertaken in three locations around the site boundary during the enabling works as shown on Figure 2 below.

Figure 2: Dust monitoring locations



- 7.2.2 This will be the responsibility of the Principal Contractor or their nominated consultant. The monitoring equipment selected shall be fully calibrated and



MCERTS certified. Calibration and maintenance shall be carried out in accordance with the manufacturer's instructions.

7.2.3 The automatic monitoring equipment will be fitted with telemetry to allow results to be accessed remotely and to facilitate real-time alerts (SMS and/or email) in the event of a breach of the Site Action Level (SAL) (see below for further details). The alerts will be directed to the Site Manager or a nominated individual in their absence.

7.2.4 An anemometer will also be installed on site (and connected to the telemetry system) to record wind direction and speed to assist with attributing the cause of any SAL breaches.

7.2.5 Records of the monitoring equipment will be retained on site including:

- The make, model and serial numbers of the monitoring equipment;
- Copies of calibration certificates;
- Quarterly monitoring reports (as detailed in Section 7.5 below).

### 7.3 **SITE ACTION LEVELS**

#### Visual monitoring

7.3.2 Where a score of C or more is recorded then works shall cease in this area, the nominated person will identify the source of dust emissions instigate further mitigation as appropriate. If appropriate, activities will be suspended until conditions improve.

7.3.3 Should the score of C be exceeded on more than two consecutive days, or complaints be received, additional independent monitoring will be undertaken. This will be undertaken at the phase boundary using an MCERTS-accredited monitoring device, which shall be set up for the duration of the working day. The location of the monitor shall be on the relevant phase boundary in the direction of the closest sensitive receptor.

7.3.4 The EA recommends a SAL of  $75 \mu\text{g.m}^{-3}$  for  $\text{PM}_{10}$  over a five-minute averaging period. In the event of a breach of the SAL, the source of dust emissions will be identified and additional mitigation will be implemented to reduce the generation of dust and migration off site. If appropriate, activities will be suspended until conditions improve.

#### Real-time $\text{PM}_{10}$ monitoring

7.3.5 As with the reassurance monitoring above, the  $\text{PM}_{10}$  SAL for the permanent monitoring stations will also be  $75 \mu\text{g.m}^{-3}$  over a five-minute averaging period. In the event that the SAL is breached, the Site Manager will temporarily suspend site operations until the cause has been identified and additional control measures can

be implemented (assuming site operations are deemed to be the cause of the breach).

7.3.6 If appropriate enhanced abatement measures cannot be identified and implemented, (and observed PM<sub>10</sub> levels remain above the action level for six consecutive, 5-minute mean readings (i.e. 25 minutes) concurrent with recorded wind directions suggesting that the source of particulate could be from the site activities) then operations will be suspended until measured PM<sub>10</sub> concentrations drop below the action level of 75 µg.m<sup>-3</sup> for six consecutive, 5-minute mean readings.

7.3.7 Any 'lessons learnt' from the Site Manager's investigations will be implemented into DEMP to prevent a re-occurrence.

#### 7.4 **COMPLAINTS**

7.4.1 The appointed Site Manager will investigate any dust complaint from the surrounding area that is attributed to site activities within two working days. If, following investigation, the complaint is valid, and the incident is attributed to on-site or trackout activities, then further controls (within industry best practice limits) will be implemented. In the event that additional mitigation is not able to be implemented (e.g. all reasonable measures are already in operation), activities in affected or high sensitivity areas will be restricted until either sufficient suppression measures can be employed or adverse weather conditions improve. Any complaints will be reported to the EA and LBR within two working days of being received.

7.4.2 A Dust Incident Record will be completed for all complaints received detailing the established cause of the complaint and any actions taken as a result.

7.4.3 All records will be made available to the EA and LBR upon request.

#### 7.5 **REPORTING**

7.5.1 The duration of the enabling works is anticipated to be 52 weeks. Monitoring reports will be submitted to the EA and LBR on a quarterly basis (or at the frequency required by the EP conditions). The monitoring reports will:

- summarise the works undertaken on site during the period,
- provide a summary of monitoring results during the period,
- provide details of any breaches of the Site Action Level (together with details of the cause and any enhanced mitigation employed as a result),
- provide details of any complaints received (together with details of action taken).

**SECTION 8 SUMMARY**

- 8.1 This DEMP sets out the control measures to be employed during the proposed enabling works to mitigate dust and air emissions. Responsibility for the implementation of the measures within this DEMP sits with the Principal Contractor's Site Manager overseen by the technically competent person named in the EP application. In addition to regular visual inspections to identify dust emissions, real-time monitoring of PM<sub>10</sub> will be undertaken during the works to ensure that control measures are operating effectively and to assist with implementing enhanced measures as and when required.

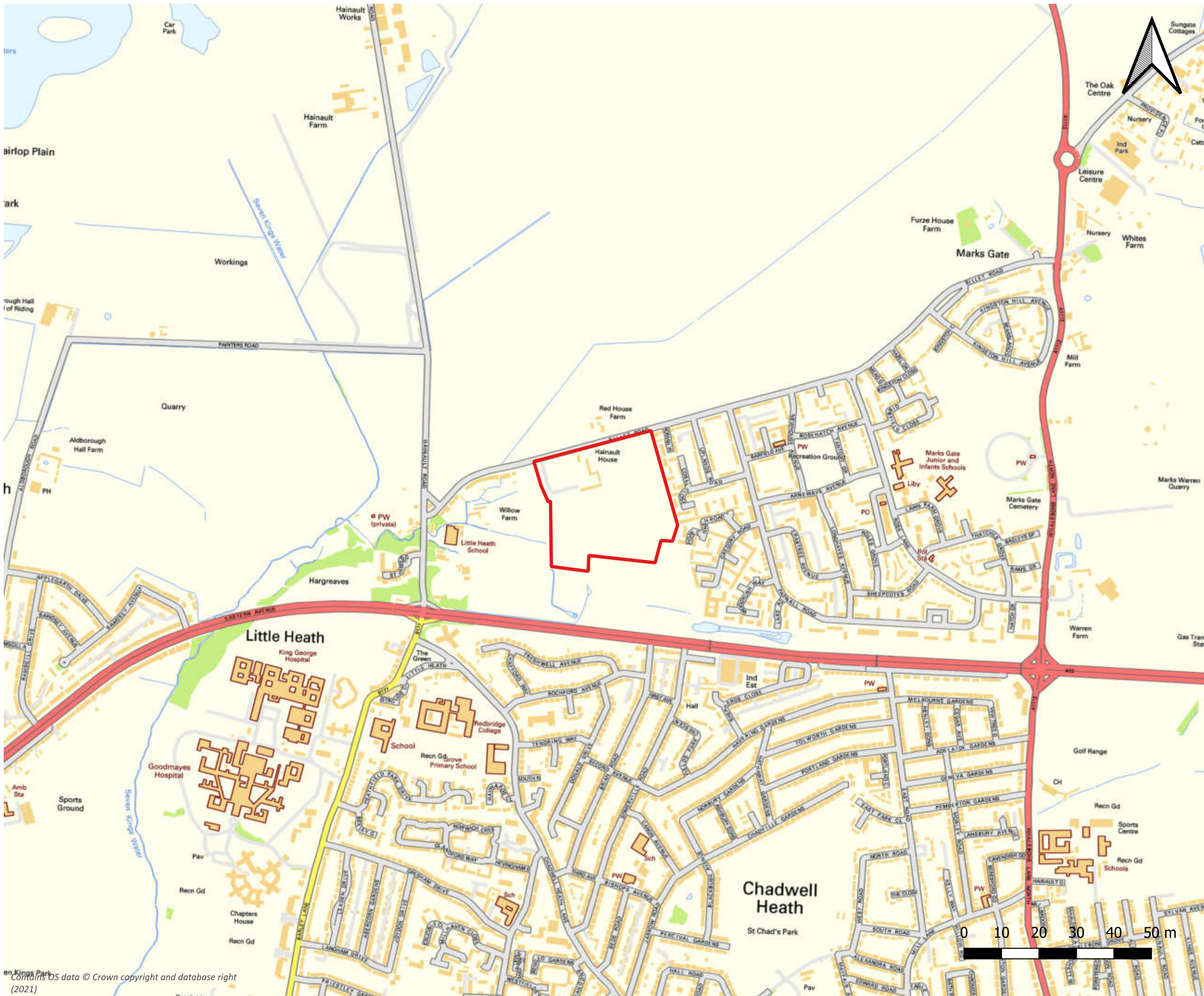
**SECTION 9 REVIEW OF DEMP**

- 9.1 The measures and actions outlined within this DEMP will be adopted by the appointed contractor(s), who will undertake a review of all measures set out within this document and ensure that they are appropriate for the anticipated methods of working and site activities. Where any changes to this DEMP are anticipated, these will be agreed with the EA and LBR, following which this DEMP will be updated as necessary.
- 9.2 The DEMP will be updated in the event of any significant changes including, but not limited to, changes to site operations, new environmental risks being identified, amendments to dust control measures or introduction of new sensitive receptors in the vicinity (or sooner in the event of an accident, complaint or breach of permit). A record of the reviews will be kept together with any actions taken. Any revisions of this DEMP will be supplied to the EA and LBR

**APPENDIX 1**

- Drawings:
- Site Location Plan
- Sensitive Receptor Locations





**Legend**

Site Boundary 

First Issue	03/04/2024	-
Issue Details	SA	KRJ
Issue Purpose	Dwn	Chd

Client  
**Bellway Homes Ltd**

Project  
**Billet Road, Romford**

Dwg Title  
**Site Location Plan**

Drawing No. 21912s-001-001

Scale	Date	Frame dimension mm
1:15,000	03/04/2024	(A3) 392 x 277
Drawn	Checked	Approved
SA	KRJ	KRJ

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**Legend**

Site Boundary	
20m buffer	
50m buffer	
100m buffer	
250m buffer	
500m buffer	
1000m buffer	
Sensitive Receptors	
Residential within 250m	

First Issue	03/04/2024	-
	SA	KRJ
Issue Details	Dwn	Chd
Issue Purpose	Final	
Client	Bellway Homes Ltd	
Project	Billet Road, Romford	
Dwg Title	Sensitive Receptors	
Drawing No.	21912s-309-001	
Scale	Date	Frame dimension mm
1:15,000	03/04/2024	(A3) 392 x 277
Drawn	Checked	Approved
SA	KRJ	KRJ

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**APPENDIX 2**    ▪    Conceptual Site Model

Table A1: Conceptual Site Model

Source	Pathway	Receptor	Type of impact	Where relationship can be interrupted
Incoming material	Spillage of material onto public highway	Residents of dwellings adjacent to (within 50 m of), and motorists using, Billet Road	Visual soiling and subsequent resuspension of airborne particulates	Ensure incoming loads are sheeted and ensure regular road sweeping to keep highway clean outside site entrance.
Tipping of material	Atmospheric dispersion	Receptors within 250 m of site boundary	Airborne particulates	The distance between tipping areas and receptors will be maximised as far as practicable. During dry/windy conditions, material will be tipped slowly with active dust suppression employed or on standby ready for immediate use.
Stockpiling of materials prior to placement	Wind whipping	Receptors within 250 m of site boundary	Airborne particulates	The distance between stockpiles and sensitive receptors will be maximised as far as practicable. Stockpiles will be limited in height and damping down will be undertaken if required.
Movement/spreading of material on site	Atmospheric dispersion	Receptors within 250 m of site boundary	Airborne particulates	Limit speed of vehicles/plant moving across the site to 10 mph. Utilise dust suppression during dry/windy conditions.
Vehicle exhaust emissions (wagons)	Atmospheric dispersion	Residential properties adjacent to eastern boundary and Billet Road	Airborne particulates	Ensure HGVs meet requirements of ULEZ and avoid peak times of congestion. No engine idling allowed.
NRMM exhaust emissions	Atmospheric dispersion	Residential properties adjacent to eastern boundary	Airborne particulates	Ensure NRMM meets required emission standards and that maintenance is undertaken in accordance with manufacturers recommendations. Use ULSD fuel as a preference. No engine idling allowed.
Trackout of mud onto road	Tracking dust on wheels and vehicles, then mud dropping off onto public highway	Residents adjacent to, and motorists using, Billet Road	Visual soiling	Remove mud before vehicles leave site. Drive through and wet wheel wash system to be in place. Use of road sweeper on public highway in vicinity of site entrance.



Source	Pathway	Receptor	Type of impact	Where relationship can be interrupted
Resuspension of dust on highway	Resuspension and atmospheric dispersion	Residents of dwellings adjacent to (within 50 m of) Billet Road	Airborne particulates	Use of wheel wash to remove mud from HDV wheels before exiting site and regular use of road sweeper to keep highway clean outside site entrance.

**APPENDIX 3**    ▪    Control Measures

Abatement Measure	Description / Effect	Overall consideration and implementation	Trigger for implementation
<b>Preventative Measures</b>			
Erection of hoarding	Creating a barrier between the source of dust and particulates and receptors is likely to be the most effective method of control.	Relatively easy to implement.	Continuous requirement
Site / process layout in relation to receptors	The distance between tipping activities and downwind receptors at the time of tipping will be maximised where practicable, particularly in dry, windy conditions	As levels are to be raised across the whole, site works will, at times, be required in close proximity to receptors. Works close to the eastern boundary will be avoided during dry windy conditions.	Continuous requirement
Site speed limit of 10 mph	Limit speed of vehicle/plant movements across the site to 10 mph. Regular damping down of haul routes during dry/windy conditions.	Easy to implement as part of good practice.	Speed limit will be enforced at all times. Damping down of haul routes as required by weather conditions
Speed of tipping	Reducing the speed at which material is tipped should reduce the distance over which debris, dust and particulates could be blown and dispersed by winds.	Relatively easy to implement. The distance between tipping areas and receptors will be maximised as far as practicable. During dry/windy conditions, material will be tipped slowly with active dust suppression employed or on standby ready for immediate use.	Only necessary when weather conditions increase the potential for dust impacts (i.e. dry, windy conditions)
Good house-keeping	Regular inspections by the Site Manager (recorded in the daily log) will ensure issues are identified and remedied promptly to prevent and remove dust and particulate build up. Hoarding/barriers will be kept clean using wet methods	The Site Manager will perform site checks in the morning and afternoon and record in the daily log along with any remedial action undertaken. This will include dust generation from the enabling works and trackout of mud onto the public highway. Weekly inspections of off-site surfaces for dust soiling will also be undertaken as detailed in Section 6.1 of the DEMP.	Continuous requirement for documented inspections.  Cleaning of hoarding/barriers as deemed necessary by Site Manager.

Abatement Measure	Description / Effect	Overall consideration and implementation	Trigger for implementation
Sheeting of vehicles	Prevents the escape of debris, dust and particulates from vehicles as they enter the site.	Relatively easy to implement.	Continuous requirement
Managing operations during high winds and/or prevailing wind direction	Mobilisation of dust and particulates is likely to be greater during periods of strong winds and hence managing operations and mitigation measures at these times may reduce peak pollution events.	Likely to reduce dust and particulate emissions, however, not a long-term solution.	Implemented as deemed appropriate by Site Manager or as a result of SAL breach (see Section 6.3 of DEMP) or as a result of complaint where it is not possible to enhance mitigation to an acceptable level.
Install wheel wash	The wheel washing system will be located within the vehicle holding area adjacent to the Site access point on Billet Road, which all vehicles must use prior to exiting the Site onto the public highway.	Vehicles will drive through slowly on exit to maximise efficiency of cleaning.	Continuous requirement
Minimisation of stockpile heights and volumes on site	Where practical, minimising the height at which waste is handled should reduce the distance over which debris, dust and particulates could be blown and dispersed by winds. Reducing storage volumes should reduce the surface area over which particulates can be mobilised.	It is anticipated that the material will be spread as it is brought to site thereby reducing required storage volumes. The distance between any stockpiles and sensitive receptors will be maximised as far as practicable. Stockpiles will be shielded from the prevailing wind by solid barriers and will not extend higher than 0.5 m from the top of these barriers. Damping down will be undertaken if required.	Continuous requirement.  Damping down as appropriate in adverse weather
Minimise vehicle/plant exhaust emissions	Ensure HGVs meet requirements of ULEZ and avoid peak times of congestion and ensure NRMM meets required emission standards and that maintenance is undertaken in accordance with manufacturers recommendations. Use ULSD fuel. No		

Abatement Measure	Description / Effect	Overall consideration and implementation	Trigger for implementation
	engine idling allowed. A CLP has been produced to manage sustainable delivery of materials.		
<b>Remedial Measures</b>			
Road sweeping	Road sweeping vehicles damp down dust and particulates whilst brushing and collecting dust and particulates from the road surface, particularly at the kerbside.	The road sweeper will be operated by trained operatives. Filters and brushes will be replaced (and spray bars) maintained in accordance with the manufacturer's recommendations.	The road sweeper will be deployed as required throughout project. Sweeping will cover the site access onto Billet Road (bell mouth) and will extend onto Billet Road if necessary. In the event of maintenance/breakdown, a replacement road sweeper will be hired within 24 hours. Dry sweeping of large areas will be avoided.
Water suppression of stockpiles using hoses	Damping down of stockpiles using hoses can reduce potential for wind whipping		To be implemented at Site Manager's discretion during dry/windy weather conditions
Water suppression on haul roads with bowser	Using bowsers is a quick method of damping down large areas of the site with water jets to reduce dust and particulate resuspension	Highly water intensive but very effective at dampening down haul roads and large surface areas.	Continuous requirement unless natural dust suppression from rainfall
Dust and particulate monitor with real-time alerts	Installation of a dust and particulate monitor with specified Site Action Levels which will alert the Site Manager when short-term particulate concentrations are elevated in order that site practices can be reviewed or application of mitigation measures increased.	Helpful to monitor environmental performance and ensure control measures are operating effectively. Real-time alerts allow action to be taken immediately in the event of elevated dust/particulate emissions being generated.	Continuous requirement

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