**Introduction**

The purpose of this reference material is to provide guidance for employees planning activities that require consideration of risks to air quality and activities that may lead to the generation of dust emissions from Balfour Beatty activities. It sets out the legislative and regulative framework that needs to be observed when planning such activities.

The guidance provides management actions to be followed by the Company and its subcontractors to prevent disruption to project programme and cost by enabling the identification of practices that need to be adopted to prevent, or minimize, risks to air quality and activities that may lead to the generation of dust emissions.

Activities can require authorisation to be gained from a local authority meaning that permit requirements have to be met or if suitable management controls are not adopted or followed these environmental risks can cause a statutory nuisance and pose a health hazard and pollution risk.

**Abbreviations / Definitions**

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| **Air Quality** | Air quality can be impacted by dusts, emissions and odours arising from work activities may cause nuisance to neighbours and may lead to environmental and safety incidents.  Emissions may arise from haul routes usage, plant & fleet usage, lime/cement stabilisation, cement batching plants, cutting operations, local exhaust ventilation (LEV) units, welding fumes, solvents, smoke, dust, air conditioning and refrigeration systems, chimneys serving furnaces, fixed boilers or industrial plant as well as fumes or vapours from processes or material use |
| **Nuisance** | The prevention of the use or enjoyment of your property and land |
| **Statutory Nuisance** | A Local Authorities determination that an activity can or has had a local environmental impact that creates an unreasonable interference with the use and enjoyment of adjacent or nearby sites / premises |
| **Local Authorities** | UK local government and their councils environmental health departments responsible for the implementation, management and monitoring of compliance to environmental law |
| **Consents** | Consents issued and approved by Local Authorities for activities that can be completed within specific requirements based on their location and potential for local environmental impact |
| **Permit** | Within this document permit means the authorisation from a regulator to carry out an activity within set criteria to eliminate or minimise the potential for local air quality to be impacted or dust generated by an activity to be viewed as a nuisance. |
| **Abatement notices** | Issued by local authorities to control activities that are deemed to be causing a statutory nuisance |
| **Best Practical Means** | Management controls used and set to control activities that can generate statutory nuisances should consider the following points to determine their applicability and effectiveness:   * Regard to the current state of technical knowledge * The local conditions and circumstances * The financial implications * The means to be employed including the design, installation, maintenance and manner and periods of operation and plant and machinery, and the design, construction and maintenance of buildings and structures   So far as compatible with any duty imposed by law and has to be compatible with safety and safe working conditions |
| **Best Available Technology** | Best available techniques not entailing excessive costs (BATNEEC), sometimes referred to as best available technology.  Best Available Techniques - means the most effective method to prevent and, where that is not practicable, to reduce emissions and the impact on the environment as a whole.  Techniques - includes both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned;  Available – techniques that are developed on a scale to allow implementation in a relevant industrial sector, under economically and technically viable conditions, taking into consideration the costs and advantages as long as they are reasonably accessible to an operator;  Best - means most effective in achieving a high general level of protection of the environment as a whole |

**Legislation and Regulation**

England, Wales, Scotland and Northern Ireland **(EN) (W) (S) (NI)**

Environment Act 1995 and Air Quality (England) Regulations / Air Quality (Scotland) Regulations / Air Quality (Wales) Regulations 2002 - Any vehicles operated Balfour Beatty or contractors need to comply with all relevant vehicle emission standards and respond to Air Quality Management Areas (AQMAs) requirements.

Environmental Protection Act, 1990 amended 2006: Requirement that certain “prescribed processes” obtain authorisation to operate as either Part A processes (requiring Integrated Pollution Prevention & Control).

Part B processes (requiring Local Air Pollution Control) - Authorisations are required for the following processes that may form part of Balfour Beatty activities:

* Mobile crushers / screening plant
* Mobile road stone coating plants
* Note: Mobile or site based concrete batching plants do not require authorisation.

Authorisations provided under this legislation are gradually being replaced with those required under Pollution Prevention and Control and environmental permitting legislation.

The Pollution Prevention and Control Regulations 2000 (England & Wales / Northern Ireland / Scotland) amended some of the regulations:

* Schedule 1 to the Regulations specifies the activities covered & describes three tiers of control (dependant on the nature & size of the activities):
  + Part A1: Regulated by the EA
  + Part A2: Local Authority will apply Integrated Pollution Prevention & Control
  + Part B: Local Authority Pollution Prevention & Control
* Section 6.4 to Schedule 1 defines the activities requiring a permit

Solvent Emissions (England and Wales) Regulations and Integrated Pollution Prevention & Control, (Designation of Solvent Emissions Directive) (Scotland) Order, 2004 -These Regulations limit emissions of volatile organic compounds from the use of organic solvents.

The majority of activities regulated under Integrated Pollution Prevention & Control / Environmental Permitting legislation with new conditions on solvent emissions being applied. The regulations may make some painting / bonding systems redundant that impact Balfour Beatty activities such as paint spray booths.

Some industrial processes and activities must operate under a permit and some permits may restrict emissions to air, water and land. Activities are divided into Part A, B and C processes and activities. Mobile plant activities such as crushing and screening are covered by these regulations and permit for this process is required.

Pollution control requirements apply to any industrial or trade premises (including construction sites), manufacturing facilities or any site owned or leased.

Air pollution control is regulated by Scottish Environmental Protection Agency / Environment Agency / Natural Resources Wales and UK Local Authorities.

The Local Authority can apply limits on emissions of smoke, grit and dust produced. Breaching these limits may be committing an offence and could lead to prosecution. If this is a requirement, then the application, fees and renewal of any authorisations is the responsibility of the project lead to ensure that this need is addressed within project activities. Any restrictions or control requirements laid down by such an authorisation from the Local Authority need to be followed at all times to minimise and control emissions.

For example: The regulations mean an environmental permit may be required for certain Balfour Beatty activities such as paint spray booths.

England, Wales Scotland and Northern Ireland **(EN) (W) (S) (NI)**

Clean Neighbourhoods and Environment Act, 2005: Encompasses many areas of the law affecting local environmental quality. Provisions of this Act cover the following areas: crime and disorder, vehicles, litter and refuse, graffiti and defacements, waste, noise, dogs, and architecture and the built environment.

The Act classifies statutory nuisances (noise, vibration, artificial light, dust, odours, litter etc.) and provides local authorities, parish and community councils and the Environment Agency with more effective powers and tools to tackle poor environmental quality and anti-social behaviour.

Clean Air (Northern Ireland) Order 1981 / Clean Air Act 1993 Regulated by Scottish Environmental Protection Agency / Environment Agency / Natural Resources Wales / Smoke Control Areas (Authorised Fuels) (England) Regulations (as amended) / Scotland Regulations 2010 / Wales Regulations 2008 (as amended) / – Regulated by Local Authorities sets out the requirements that no burning of waste allowed and Vehicles / Plant to be adequately maintained and not left idling.

**What you need to do**

The Environmental Risks and Opportunities ([ENV-PR-0001](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-7119)) must be followed to determine the likely environmental impact from site activities.

This includes an assessment of the impact of air quality and dust arising from site activities. The assessment provides detailed control measures to reduce the impact, ensure permit requirements are identified and prevent statutory nuisance. The control measures must be reviewed to ensure they include sufficient detail to effective control of site specific activities.

The Project lead is responsible for ensuring that the assessment is complete and that appropriate roles and responsibilities for ensuring the implementation and effectiveness of management control is assigned within the project team responsibilities that they addressed in risk assessments, work package plans method statements.

Best Practicable Means and Best Available Technology should be considered in the planning of work to ensure that when the works are undertaken they are done so to prevent or reduce the impact on air quality and the environment as a whole due to the Company’s activities.

**Permitted Industrial processes and activities**

The outcome of implementing the Environmental Risks and Opportunities ([ENV-PR-0001](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-7119)) should ensure that any of the Company’s activities that meet the description of “prescribed processes” under Schedule 1 of The Pollution Prevention and Control Regulations 2000 are identified and the authorisation to operate gained.

Once gained the requirements of the permit need to be documented and operational requirements for operating the permit set as part of the company’s management controls for the activity. An example of this can be found within in the Balfour Beatty Plant and Fleet procedure - Control of VOC Emissions (Raynesway, Derby) ENV-PR-211-PFS

**Refrigerant Gases**

The management of refrigerant gases can contribute to the wider and national air quality issues but can also have a local environmental impact. Please refer to Fluorinated Greenhouse Gas Regulations 2015 ([ENV-RM-0024a](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-1087)).

**Plant, Vehicle and Equipment Emissions**

The issue of plant, vehicle and equipment emissions impacting air quality because of fossil fuel usage is now being addressed in a number of different ways.

To understand how Balfour Beatty targeting and addressing the company’s direct carbon emission please refer to Sustainability Reporting Procedure [SUS-PR-0001](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-6147).

An example of the regulation that is being introduced to further control emissions air quality can be understood by referring to London Projects Non-Road Mobile Machinery (NRMM) Emissions Regulations ([ENV-RM-0011a](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-6570)).

Where emission controls such as local exhaust ventilation (LEV) units are in place, they shall be maintained and monitored in accordance with the Control of Substances Hazardous to Health Regulations. Please refer to procedure COSHH ([HSF-PR-0021](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-1112)). Two useful tools to support the potential impact of this issue are the Exhaust Emission Exposure Risk Assessment Questionnaire ([ENV-SF-0014a](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-8820)) and the LEV Test Record Sheet ([HSF-TF-0021b](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-9024)).

The following points should always be considered when assessing management controls for Plant, Vehicle and Equipment emissions:

* All plant and vehicles must be regularly maintained and serviced
* Any plant or vehicles that are emitting fumes (e.g. dark, blue, thick white and possibly grey) must be reported immediately and taken out of service for checking and maintenance
* All plant and vehicles must be switched off when not in use
* Vehicle and plant engine – should when possible meet the highest Euro standard available and at a least the minimum Euro standard required at the time.

**Haul Routes**

Haul routes should be planned with the consideration that emissions of dust could be generated by their use. The following points should always be considered when planning and managing haul routes:

* Haul routes must be located away from sensitive receptors wherever practicable
* Surfacing must be provided on medium and heavily used haul routes and car parking areas, wherever possible and appropriate
* Haul routes must be maintained so that they are clear of mud deposits and dusty materials
* Large areas of paving within the site, and on public roads affected by site traffic, should be regularly vacuum swept, wherever possible and appropriate
* Water or other means of suppression must be used to prevent dust generation (preferably non-potable, uncontaminated site-won water, for example from constructed ponds)
* Water must be applied to haul roads using a mobile bowser or other suitable method as frequently as required to effectively suppress dust
* Where appropriate a vehicle wash area or wheel wash for vehicles leaving the site must be provided
* Site speed limits must be imposed
* Where appropriate suitable fences must be erected, to reduce dust emissions from working areas and to screen sensitive locations.

**Materials Handling and Storage**

Materials Handling and Storage should be planned with the consideration that emissions of dust could be generated if they are not controlled and managed appropriately. The following points should always be considered when planning and managing materials handling and storage:

* Stockpiles of materials must be located away from sensitive locations and the site boundary, wherever practicable
* Materials must be stored in areas with adequate protection from the wind and, where practicable, within stores or buildings
* Stockpiles must be kept to the minimum practicable height and slopes at a shallow gradient
* Stockpiles surfaces must be compacted where appropriate. Long-term stockpiles, for example topsoil stores, must be seeded or covered, i.e. tarpaulin.
* Water or other means of suppression must be used to prevent dust generation (preferably non-potable, uncontaminated site-won water, for example from constructed ponds)
* The surface of stockpiles and earthworks must be dampened during the summer/dry/windy conditions if dust is being generated
* The drop heights of materials into haulage vehicles and onto conveyors must be minimised
* Conveyor transfer points must be enclosed and loads that are dry and liable to generate dust must be dampened
* Wagons must be sheeted where they are delivering or carrying friable materials off-site or within site, where appropriate
* Where appropriate suitable fences must be erected, to reduce dust emissions from working areas and to screen sensitive locations.

**Demolition**

Demolition should be planned with the consideration that emissions of dust that be generated if they are not controlled and managed appropriately it is fundamental that all hazardous materials must be identified, removed and disposed of before starting any demolition. The following points should always be considered when planning and managing demolition to minimise the impact of activities on air quality and emissions of dust:

* Where necessary, water sprays must be used to damp down structures prior to, and during demolition; and or debris screens/sheets provided
* Where appropriate suitable fences must be erected, to reduce dust emissions from working areas and to screen sensitive locations
* Loads of loose and dusty demolition waste must be covered prior to removal from site by either rigid vehicles or skips

**Earthworks and Excavations**

Earthworks and Excavations should be planned with the consideration that emissions of dust could be generated if they are not controlled and managed appropriately. The following points should always be considered when planning and managing Earthworks and Excavations:

* The potential for the discovery of Contaminated Land increases during earthworks and excavations is increased the Excavation Procedure ([HSF-PR-0016](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-8608)) should be followed and the consideration that dust from contaminated land can impact air quality. Testing of contaminated land may be needed to ensure that the appropriate control measure are implement to mitigate the risk of emission impacting air quality
* Water or other means of suppression must be used to prevent dust generation (preferably non-potable, uncontaminated site-won water, for example from constructed ponds)
* Completed earthworks must be top-soiled, seeded and where appropriate planted as soon as practicable
* Where appropriate suitable fences must be erected, to reduce dust emissions from working areas and to screen sensitive locations

**Cutting, grinding and drilling**

Cutting, grinding and drilling should be planned with the consideration that emissions of dust could be generated if they are not controlled and managed appropriately. The following points should always be considered when planning and managing Cutting, grinding and drilling activities:

* The potential dust generated from cutting, grinding or drilling activities should consider the material to ensure that the appropriate control measure are implement to mitigate the risk of emission impacting air quality. In some cases testing of the chemical composition of a material may be required to ensure that the appropriate control measure are implement
* Works involving cutting, grinding or similar must be enclosed shielded or, where appropriate, the equipment must be fitted with dust suppression, extractors or filters
* Where appropriate suitable fences must be erected, to reduce dust emissions from working areas and to screen sensitive locations
* Water or other means of suppression must be used to prevent dust generation (preferably non-potable, uncontaminated site-won water, for example from constructed ponds)

**Bulk powder deliveries such as lime, cement and bentonite**

Bulk powder deliveries and activities such as concrete batching should be planned with the consideration that emissions of dust could be generated if they are not controlled and managed appropriately. The following points should always be considered when planning and managing these activities:

* Powders supplied and delivered in bulk must be delivered by tanker and stored in silos fitted with exhaust filters
* Silos and stockpiles must be positioned away from residential areas and watercourses
* Large scale mixing of powders must be mixed in enclosed or shielded areas
* Where appropriate suitable fences must be erected, to reduce dust emissions from working areas and to screen sensitive locations
* Where batching plants are installed on site they must include Best Available Technology to prevent and control dust emissions including audible and visual alarm systems to alert the operator in the event of a system failure. If the plant is supplied by a subcontractor a copy of their permit must be obtained prior to operating on site. Checks made, during operation, to ensure compliance to the permit must be made
* Any batching plant used on site must be registered under an environment permit. A copy of the permit must be held on site

**Processing of Materials**

Processing of materials should be planned with the consideration that emissions of dust could be generated if they are not controlled and managed appropriately. The following points should always be considered when planning and managing activities that require the processing of materials:

* Crushers must be located as far as practicable from site boundaries and sensitive receptors
* Any crushing or screening plant used on-site must be registered under an environment permit. A copy of the permit must be held on-site. If the plant is supplied by a subcontractor a copy of their permit must be obtained prior to operating on site. Checks made, during operation, to ensure compliance to the permit must be made
* Where appropriate suitable fences must be erected, to reduce dust emissions from working areas and to screen sensitive locations

**Odours**

The storage of materials, waste and welfare facilities have the potential for impacting local air quality due to emissions of odour if they are not planned, controlled and managed appropriately. The following points should always be considered when planning and managing these activities:

* Skips shall be enclosed or covered wherever possible and shall be regularly emptied to prevent escape of odours and waste to the environment. Long term storage of odour producing waste should be avoided. Please refer to Waste Management ([ENV-RM-0035a](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-8609))
* Where portable toilet facilities are provided on site then ensure they are positioned away from public areas and that arrangements are made for regular disposal of the effluent. Please refer to Project Welfare Facilities (HSF-PR-0062)
* When planning the storage of fuels, oils, liquids and chemicals take account of Control of Substances Hazardous to Health Regulation details of the material and liquids. Consider the potential impact on both on site personnel and the general public. Please refer to COSHH ([HSF-PR-0021](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-1112)) and Storage of Fuels Oils and Liquids ([ENV-RM-0007a](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-7125))
* Take account of the wind conditions when arranging activities that are likely to emit odours

**Fires** - The burning of any materials on site is prohibited.

**Monitoring**

Visual monitoring should be carried out as part of site inspection schedules to ensure dust emissions from activities are assessed and the effectiveness of management control measures implemented are regularly monitoring for compliance. Records of the outcomes of the inspections documented to include at a minimum:

Time & date;

Confirmation of any visible dust emissions;

Remedial actions taken if emissions observed; and

Wind direction and strength (a weather station, wind sock or knowledge of the Beaufort Scale would assist the reading of the UK's National Meteorological Service – The Met office wen page <http://www.metoffice.gov.uk/>).

More detailed monitoring may be required under planning and/or contractual conditions or through agreement with the local authority. The types of sites for which monitoring is particularly likely can include large or long term sites in sensitive areas (e.g. residential), contaminated sites, and sites in sensitive air quality areas, such as Air Quality Management Areas (AQMAs) and monitoring such as Passive Dust Deposition Rate (DDR) Monitoring by Frisbee Gauges may be specified.

Monitoring regimes for detailed monitoring can range from real time, continuous monitoring to the visual assessment of dust generation. Simple and inexpensive monitoring of construction impacts may be conducted by means of a number of techniques, including the diffusion tubes for gaseous pollutants (NO2, SO2 etc.), dust deposition monitoring (e.g. by ‘Frisbee’ dust deposit gauge), and optical real-time continuous particle monitors (e.g. Nephelometers).

Remember the companies golden rules 1) be fit for work 2) always receive a briefing before starting work 3) report all unsafe events and conditions 4) stop work if anything changes.

If the control measures fail follow the emergency arrangements set for the activity if needed and stop the works to review risk assessment and control measures and/or agreement and conditions of the consent or permit.

**Reporting Incidents**

Any incidents must be reported and notified as set out in [HSES-PR-0005](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-8639) Incident Reporting and Investigation and as per business unit reporting requirements.

**UK Documentation**

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| **Reference** | **Type** | **Title** |
| [ENV-SF-0014a](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-8820) | Form | Exhaust Emission Exposure Risk Assessment Questionnaire |
| [HSF-TF-0021b](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-9024) | Form | LEV Test Record Sheet |
| [ENV-TB-0014a](https://home360.balfourbeatty.com/ghoreferencecentre/Group%20BMS/_layouts/DocIdRedir.aspx?ID=2KHUWT73P6SE-1572-8833) | Toolbox Talk | Air Quality and Dust |