



DUST EMISSIONS MANAGEMENT PLAN

**CROFT QUARRY
MARION'S WAY
CROFT
LEICESTERSHIRE
LE9 3GP**

**Document Reference: AI1009/11.R0
June 2024**



**Project Quality Assurance
Information Sheet**

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Report Status : Final
Report Reference : AI1009/11.R0
Report Date : June 2024
Prepared for : Aggregates Industries UK Limited
Prepared by : Sirius Environmental Limited
The Beacon Centre for Enterprise
Dafen
Llanelli
SA14 8LQ

Written by :

**David Rowe BSc (Hons) MSc
Environmental Consultant**

Reviewed by :

**Dylan Thomas BSc (Hons) PGDip MCWIM
Principal Environmental Consultant**

Approved by :

**Mark Griffiths BSc (Hons) MSc CEnv MCIWM CGeol
Environmental Director**

Revision	Date	Amendment Details	Author	Reviewer
0	June 2024	First Issue	DR	DT

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1 INTRODUCTION

1.1 Scope & Background

- 1.1.1 This Dust Emissions Management Plan (DEMP) has been prepared by Sirius Environmental Limited (Sirius) on behalf of Aggregate Industries UK Limited ('AI') to support all permitted waste operations carried out at Croft Quarry, Leicestershire.
- 1.1.2 The DEMP considers the potential for the generation of fugitive dust emissions from the waste related operations carried out at the site. It outlines the site conditions, operational processes, controls to be applied and the monitoring to be undertaken to avoid potential nuisance and environmental harm from occurring. Whilst AI also operates a range of other non-waste industrial activities at the site, this DEMP does not specifically seek to manage any potential emissions associated with these activities. However, it is recognised that there will be overlap in appropriate measures necessary to manage potential dust emissions from such activities.
- 1.1.3 This DEMP has been prepared with cognisance to the materials being handled and processed at the site and therefore considers appropriate measures for the control of potential emissions from the facility. A copy of this document will be kept on site in the office for staff and personnel to refer to when needed.

1.2 Site Location and Layout Description

- 1.2.1 Croft Quarry is a long-established granite quarry with extraction occurring since 1886. Croft Quarry is currently worked in accordance with planning permission granted by Leicestershire County Council in February 1995. The planning permission was subject to a Review of Mineral Planning Permissions (ROMP) by Leicestershire County Council in 2010. The Croft Quarry complex occupies an area of c. 111.5ha, in which the current quarry footprint occupies c. 33Ha. Associated ancillary operations, mineral/waste processing and construction product manufacturing activities are currently conducted to the south/southeast of the current extraction footprint.
- 1.2.2 Mineral Planning Consent has recently been acquired that allows the lateral extension of the quarry void footprint to the south/southeast, which will increase the main quarry footprint to a total of ~48Ha. The extension of the extraction void will require the reorganisation of the layout of the ancillary activities carried out to the south/southeast of the current quarry extents. The operational boundaries for the quarry restoration activities, waste reception and waste treatment activities are presented in **Drawing No. AI1009/14/02**. The ancillary operations area is set behind mature vegetation (including perimeter hedgerows) and developed woodland.
- 1.2.3 The operational extents of Croft Quarry are located to the immediate north of the village of Croft and ~350m southwest of the village of Huncote. Residential properties are also located beyond the western boundary of the quarry along Huncote Road, Thurlaston Lane, Stanton Lane and Marston Road. Located to the south of the landfill site are the South Leicester railway branch and the B4114 (Coventry Road) and a few light industrial units. Both the South Leicester Railway and B4114 run southwest-northeast along the quarry's southern boundary.
- 1.2.4 Three Sites of Special Scientific Interest (SSSIs) sit within 650m of the application site boundary. One of these SSSIs; Croft Pasture, is located

approximately 620m to the southwest of the application site and comprises of acidic mixed grassland; which has been identified as containing Bullhead fish; designated as a protected species, within the stretch of the River Soar that traverses Croft Pasture SSSI. The remaining two SSSIs are located within the application site boundary, the first; Croft Hill, is located adjacent to the north-western corner of the proposed landfill void and has been designated a SSSI due to the presence of rare grasses; designated as a protected habitat under Lowland dry acid grassland. The second SSSI within the application site boundary contains the quarry void itself which forms the Croft and Huncote Quarry SSSI. This site was awarded SSSI status due to the exposures of Ordovician tonalitic igneous rock, attendant zeolite mineralisation and younger manganese mineralisation of Triassic age.

Operational Hours

- 1.2.5 Operations involving or connected with the receipt and deposition of delivered materials/waste (other than by rail) and shall be carried out in the following times:-
- Monday – Saturday 0600 – 2200hrs
 - Sunday & Bank Holidays: Closed
- 1.2.6 The recycling/treatment of inert and non-hazardous waste materials shall only be undertaken in the following times:
- Monday – Saturday: 0700 – 1900hrs
 - Sunday & Bank Holidays: Closed
- 1.2.7 The unloading, loading, movement and servicing of trains may be carried out at any time.

2 SENSITIVE RECEPTORS

2.1 Receptor Identification

2.1.1 A full list of potential sensitive receptors to dust and other emissions (such as nitrogen dioxide from combustion sources including generators, road vehicles and mobile plant) within 1km of the facility are listed in **Table DEMP1**. Their locations are illustrated in **Drawing No. AI1009/14/11**.

Table DEMP1: Potential Sensitive Receptors identified within 1km of the site

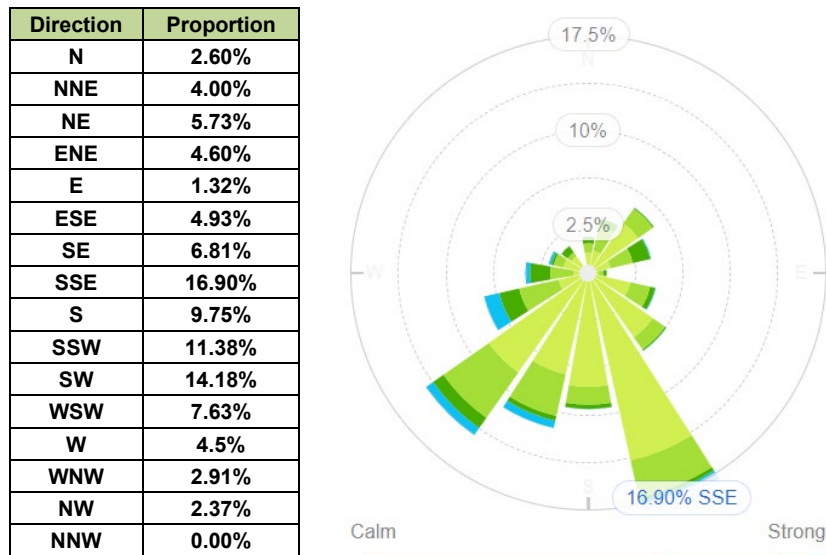
ID	Receptor Name	Type of Receptor	Approximate nearest distance from the operational boundary	Direction from the permit boundary	Potentially Susceptible to Dust Emission (Y/N?)
R1	Croft and Huncote Quarry	Site of Special Scientific Interest	On-Site	N/A	N
R2	Croft Hill	Site of Special Scientific Interest	Adjacent	Northwest	Y
R3	The Huncote New Hill Nature Reserve	Local Nature Reserve & Local Wildlife Site	Adjacent	East	Y
R4	Public Footpaths	Public Right of Way	Adjacent up to 440m	North and South	Y
R5	Coventry Road (B4114)	Public Highway	Adjacent	South	Y
R6	Croft Hill Road	Public Highway	Adjacent	North	Y
R7	Thurlaston Lane	Public Highway	Adjacent	North	Y
R8	Huncote Road	Public Highway	Adjacent	West	Y
R9	Stanton Lane	Public Highway	Adjacent	West	Y
R10	Marston Road	Public Highway	Adjacent	Southwest	Y
R11	South Leicester Railway	Public Transportation	Adjacent	South	Y
R12	Croft Village	Residential / Recreational / School	Adjacent	South	Y
R13	River Soar, Thurlaston Brook and Broughton Astley Brook	Water Body and Local Wildlife Site	Adjacent	East and South	Y
R14	Residential Properties along Huncote Road	Residential	Adjacent	West	Y
R15	Agricultural Land	Agricultural	Adjacent up to 500m	All Directions	Y
R16	Residential Properties along Marston Road	Residential	Adjacent up to 240m	West	Y
R17	Winston Avenue	Commercial / Industrial	30m	South	Y
R18	Croft Pasture and Roadside Verge	Site of Special Scientific Interest & Local Wildlife Site	Adjacent to 70m	Southwest	Y
R19	Huncote Village	Residential / Recreational / School	350m	Northeast	Y
R20	Residential Properties on Stanton Lane	Residential	290m to 600m	West	Y

ID	Receptor Name	Type of Receptor	Approximate nearest distance from the operational boundary	Direction from the permit boundary	Potentially Susceptible to Dust Emission (Y/N?)
R21	Standalone Residential Properties	Residential	500m to 950m	East, South	Y
R22	Three Boundaries Business Park	Commercial / Industrial	700m	South	Y
R23	Elms Farm Industrial Park	Commercial / Industrial	850m	Northeast	Y

2.2 Meteorological Setting

2.2.1 A wind rose based on the five-year mean of meteorological data recorded at Church Lawford (~22km south of Croft) is presented in **Figure DEMP1**. The predominant wind direction depicted from the south-southeast, with a significant contribution from the south to southwest. Winds from these directions amount to ~52% of the wind.

Figure DEMP1: Five-year (2018-2023) average wind statistics for Church Lawford



Source: www.willyweather.co.uk

2.3 Additional Sources of Dust and / or Other Emissions

2.3.1 **Table DEMP2**, lists the other potential sources of dust and emissions such as Nitrogen Dioxide located within 1km of the facility.

Table DEMP2: Additional Potential Sources of Dust and/or Other Emissions within 1km of the site

Name	Address	Type of Business	Distance from the site (m)	Direction from the site
Aggregate Industries	Marion's Way, Coventry Road	Granite Quarry	Onsite	-
Aggregate Industries	Marion's Way, Coventry Road	Mineral Processing Plant	On-site	-
Aggregate Industries	Marion's Way, Coventry Road	Asphalt Coating	On-site	-

Name	Address	Type of Business	Distance from the site (m)	Direction from the site
Aggregate Industries	Marion's Way, Coventry Road	Asphalt Coating	Onsite	-
Various	Farmland	Agricultural	Adjacent	All
Network Rail	Birmingham-Peterborough Railway	Public infrastructure	Adjacent	S
Various	Winston Avenue Industrial Estate	Various	~25m	S

3 WASTE OPERATIONS

3.1 Operations Management

3.1.1 The waste activities carried out at Croft Quarry principally include:-

- Reception and dispatch of wastes (by road and rail)
- Temporary storage of wastes
- Physical Treatment of Wastes
- Internal waste transfers (by dumper and conveyor)
- Permanent deposit of waste within the quarry void

3.2 Waste Deliveries & Dispatches

Road

3.2.1 All HGVs delivering and dispatching wastes to/from the site will access the quarry via Marion's Way that is accessed from the B4114 (Coventry Road) via slip roads and designated turning lanes. Marion's Way is a purpose-built access route that serves the quarry and removes the requirement for HGVs movements through neighbouring settlements. This access road is bounded by mature tree lines and is located ~220m from the nearest residential property.

3.2.2 Upon entry to the site all road deliveries will be directed to the weighbridge where the load will be inspected (if safe) to ensure that it matches the descriptions and details of the wastes defined during pre-acceptance checks.

3.2.3 Conforming loads will be directed to the appropriate waste reception area for discharge where they will be visually inspected for conformance with the waste descriptions provided. Conforming loads received by road which satisfy waste acceptance criteria and do not require additional inspections and verification testing will be directed to the waste reception area for discharge and deposition into the quarry void.

3.2.4 Wastes requiring inspection and verification testing will be typically stored for up to 1 week pending the completion of verification/compliance testing, if required.

3.2.5 Material will then be transported into the void via dumper truck or conveyor for final placement.

Rail

3.2.6 During the initial redevelopment phase of the site (~5 years) the existing rail sidings will be used during the day to receive waste material. During this phase material will be loaded onto dumper trucks for placement in the void.

3.2.7 All night-time rail carts will be unloaded within the Rail Handling Shed and the wastes transferred by loaders to stocking bays in the waste reception areas pending transfer to the active tipping face within the quarry void.

3.2.8 Most wastes delivered by rail will be loaded at AI's own rail handling depots. Appropriate compliance inspections and testing will have already been performed at these depots for the temporary storage times to be reduced. For loads received from non-AI facilities, the materials will be temporarily stored for typically up to 1 week to allow for appropriate verification/compliance testing to be performed as necessary.

Asbestos Containing Wastes

- 3.2.9 Waste materials containing asbestos fibres (up to 0.1%) will be subject to a booking system ahead of delivery. Deliveries will only be accepted if sufficient quantities of asbestos-free materials are available to provide cover at the end of the shift when placed into the quarry void.

3.3 Temporary Storage of Wastes

- 3.3.1 Upon receipt of all wastes at the site (road and rail) any waste that has not been fully characterised prior to arrival will be temporarily stored whilst appropriate inspection and testing is carried out. The waste reception and storage area will principally be developed within the ancillary operation area located near the rail sidings and internal haul roads to support future operational efficiencies. Wastes requiring inspection and verification testing will be typically stored for up to 1 week prior to further internal movements with Croft Quarry.
- 3.3.2 Conforming loads received by road which satisfy waste acceptance criteria and do not require additional inspections and verification testing will be directed to the waste reception area for discharge.
- 3.3.3 Most wastes delivered by rail will be loaded at AIs own handling depots. In these instances, appropriate waste acceptance criteria compliance inspections and testing will have already been performed at these depots and consequently will not require temporary storage upon their arrival at Croft Quarry. For loads received from non-AI facilities, the materials will be temporarily stored for typically up to 1 week to allow for appropriate verification/compliance testing to be performed, as necessary. The temporary storage capacity of wastes received at the rail head for to restore the quarry will be ~3,000 tonnes (two train loads). This temporary stocking area for wastes received via rail is located adjacent to the Rail Handling Shed.
- 3.3.4 The maximum waste storage capacity associated with the waste treatment operations will be 134,000 tonnes.
- 3.3.5 Upon delivery asbestos containing material will be transferred directly to the active tipping stockpiled in reception area whilst awaiting movement to quarry void for deposition. To prevent the potential windblown transportation of asbestos, such materials will be kept damp. Furthermore, any asbestos containing material still present in the reception area at the end of the working day will be covered.

3.4 Physical Treatment of Waste

Screening and Crushing

- 3.4.1 The screening and crushing activities to produce secondary aggregates will be carried out in the southwestern section of the quarry's ancillary operations area.
- 3.4.2 These treatment operations will be restricted to treating up to 200,000 tonnes of wastes per annum. The treatment of slags and ashes will be limited to 75 tonnes per day.
- 3.4.3 Wastes that are processed to produce recycled aggregates will be sold to customers offsite or used to support the production of other mineral based products at the site (e.g. readymix concrete). Soils and fines separated via the treatment operation will either be subject to soil washing activities for further

separation and used to support quarry restoration or exported to appropriately licensed or exempt waste management facilities.

Soil Washing

- 3.4.4 A wash plant will be used to produce various grades of secondary aggregate from wastes from soils. These activities will make use of soil washing plant and will be located towards the northeastern section of the quarry ancillary operations area.
- 3.4.5 These treatment operations will be restricted to treating up to 150,000 tonnes per annum of non-hazardous soils.
- 3.4.6 This process will be used to separate clay and silt particles from the coarser sand and gravel soil particles whilst also removing any contaminants from the soil. The separated, uncontaminated materials may also then be used as backfill and support the restoration of the quarry void.

3.5 Internal Waste Transfers

- 3.5.1 Once all wastes received at the site have been assessed as conforming to the site waste acceptance criteria, the wastes will be transferred to the active tipping face within the main quarry void for placement. During the early years of restoration, front end loaders and/or excavators will load the wastes into dumpers for transfer to the tipping face via the internal road networks. Access to the base of the quarry is currently via a haul road that routes around the eastern and northern edges of the quarry, where it subsequently commences its descent into the quarry at the northernmost tip of the quarry.
- 3.5.2 As restoration levels into the quarry rise above the base of the lateral extension area, the access point is likely to revert to the new access road that will be formed into the lateral extension footprint.
- 3.5.3 Within 5 years of commencing the redevelopment of the quarry complex an enclosed conveyor system is proposed to be installed to convey wastes from the waste reception and storage area to the active tipping face.

3.6 Permanent Deposit of Waste Within the Quarry Void

- 3.6.1 The final levels of the restoration quarry will be no higher than ~60m below that of the surrounding surface levels. All active tipping operations will therefore be carried out between depths of ~60m to ~230m below that of the surrounding surface.
- 3.6.2 Wastes transferred by dumper and conveyor will be unloaded at the designated tipping area and spread out and compacted by using dozers and excavators.
- 3.6.3 Up to 750,000m³ (~1.350 Million tonnes) of inert wastes will be received each year to restore the quarry. Overburden stripped from the lateral quarry extension area will be co-tipped in the void to assist in restoration.
- 3.6.4 A list of proposed wastes to be permitted at the site with the potential to produce dust and their storage / processing method is presented in **Table DEMP3**.

Table DEMP3: List of proposed wastes to be permitted at the site with the potential to produce dust and their storage / processing method

Potentially Dusty Waste types	Example EWC Code / Description	Max Throughput (tonnes/yr)	Storage Area	Process
Mineral and mining wastes	01 – Waste resulting from exploration, mining, quarrying and physical and chemical treatment of minerals	~1.35 Million	Rail head stocking and temporary stocking area	Temporary Storage and permanent deposit
		200,000	Waste treatment stocking areas	Storage and physical treatment
Construction, demolition & excavation wastes	10 12, 10 13, 17 01 – concrete, bricks, tiles, etc. 17 05 08 – track ballast	~1.35 Million	Rail head stocking and temporary stocking area	Temporary Storage and permanent deposit
		200,000	Waste treatment stocking areas	Storage and physical treatment
Wastes from waste management facilities	19 08 , 19 12 – minerals, fines	~1.35 Million	Rail head stocking and temporary stocking area	Temporary Storage and permanent deposit
		200,000	Waste treatment stocking areas	Storage and physical treatment
Slags and ashes.	10 01, 10 08, 19 01 12 – slags and ashes from thermal processes 19 12 12 – treated bottom ash	~1.35 Million	Rail head stocking and temporary stocking area	Temporary Storage and permanent deposit
		200,000	Waste treatment stocking areas	Storage and physical treatment.
Soils & Stones	17 05 04, 19 12 12, 19 13 02 & 20 02 02	~1.35 Million	Rail head stocking and temporary stocking area	Temporary Storage and permanent deposit
		200,000	Waste treatment stocking areas	Storage and physical treatment.
Glass	15 01 07, 16 01 20, 17 02 02, 19 12 05, 20 01 02	~1.35 Million	Rail head stocking and temporary stocking area	Temporary Storage and permanent deposit

Asbestos Containing Wastes

3.6.5 Waste soils comprising an asbestos fibre content of up to 0.1% will also be received to support restoration of the quarry. The deposition of these wastes will be subject to the preparation of suitable void within the active tipping area ahead of pre-arranged delivery to the site. All asbestos containing soils will be covered by clean soils (waste or overburden) at the end of each shift to minimise the release of asbestos fibres.

3.6.6 Furthermore, asbestos containing materials will be dampened using water bowsers as necessary to prevent windblown transportation of asbestos.

3.7 Mobile Plant and Equipment

3.7.1 The following mobile plant and equipment will be used to support the wastes activities carried out at the site:-

- Mobile Screeners
- Mobile Crushers
- Wash Plant
- Dumpers
- Loaders Shovels
- Excavators
- Dozers

3.8 Other Considerations

Water Usage / Availability

- 3.8.1 Waters abstracted as part of the quarry dewatering operations form the principal water supply for the site to support all mineral and waste processing activities carried out at the quarry complex. These waters are pumped from the base of the quarry and stored in multiple storage tanks across the quarry facility with a cumulative volume of 682m³.
- 3.8.2 Drainage and process waters from the southern ancillary operations area are also collected and routed for treatment in a three-stage attenuation lagoon system prior to discharge to the River Soar.

In the Event of Drought

- 3.8.3 Given the volume of water requirement to maintain dry conditions in the base of the quarry void it is not anticipated that a prolonged period of dry weather will significantly reduce the water supply at the site. However, during such period's consideration will be given to the use of process waters to support dust suppression requirements.
- 3.8.4 Mechanical sweepers will also be used to manage dusty residues on metallised sections of internal site areas to reduce water demand. Surface binders can also be used on both metallised and non-metallised surfaces.
- 3.8.5 Mains water connections are also available at the site.

4 DUST AND PARTICULATE (PM₁₀) MANAGEMENT

4.1 Site Management & Responsibility for Implementation of the DEMP

4.1.1 There will be a trained and responsible manager, with the appropriate technical competence qualification to manage the facility. The relevant qualified person will be on site for an appropriate duration of time during working hours to maintain the site logbook and carry out regular daily visual and olfactory inspections of fugitive emissions from the facility. The Technically Competent Manager (TCM) will be responsible for the implementation of the DEMP at the site.

4.1.2 The Site Manager will ensure that this Dust Emissions Management Plan is enforced on site, and its contents are communicated to all employees, visitors and contractors working at the site as part of the induction process.

4.1.3 Should an off-site fugitive dust emissions complaint be received, it will be the Site Manager's responsibility to investigate the cause and take corrective action where necessary. In summary, these individuals will:

- Assume responsibility for the management of the site;
- Ensure personnel and operatives are advised of their roles to minimise the generation of dust;
- Conduct visual monitoring at the downwind site boundary daily or immediately following a complaint (this may be carried out by an appointed person);
- Deploy suitable dust mitigation measures based on visual observation and unfavourable weather conditions (e.g. dry weather with high winds which may aid in dispersion);
- Review the performance of the operatives and efficiency of dust emissions reduction measures;
- Ensure that records are maintained; and
- Ensure that equipment is maintained.

4.1.4 A written programme of maintenance will be developed and implemented for all aspects of site operations. Maintenance will include:

- Routine scheduled inspections;
- Preventative maintenance activities;
- Reactive maintenance activities in the event of any plant breakdown – this will be minimised at all times.

4.1.5 A summary of dust control techniques is provided in **Section 4.3** and **Table DEMP4**.

4.2 Sources of Fugitive Dust and Other Emissions

4.2.1 The waste related operations that are capable of producing dust and particulate emissions include the following:

- Vehicles and plant moving around the site kicking up dust;
- Discharge of wastes from delivery vehicles (road/rail) and dumpers.
- Loading of wastes into dumpers, HGVs, conveyors feed hoppers, screeners and crushers;
- Site surfaces (including waste stocking areas, processing areas, internal haul roads, waste stockpiles, permanent deposits of wastes);
- Particulate emissions from the exhaust of road vehicles.
- Physical treatment of wastes (screening, crushing and soil washing)

4.3 Control of Fugitive Dust and Other Emissions

4.3.1 An assessment of the potential risks and impacts from fugitive dust emissions and the corresponding mitigation measures are presented in **Table DEMP4**.

4.3.2 It is considered that the potential risks of adverse health and nuisance impacts range from **very low - low** owing to the control / mitigation measures that will be employed at the site. The justification for this assessment is:

4.3.3 A Dust Emissions Management Plan (DEMP) will be maintained for all wastes operations carried out at the site.

- All delivery and dispatch vehicles/containers (road and rail) to be sheeted or fully enclosed.
- Rail deliveries to be unloaded within the Rail Handling Shed at night;
- Wastes to be transferred from the waste reception area to the tipping face via enclosed conveyor systems or by dumpers. Drop heights into loading conveyor and dumpers will be minimised with all plant operators appropriately trained;
- The Site Manager or instructed site personnel will undertake regular inspections of site surfaces and the public highway in order to identify the need for any cleaning requirements. Observations from all inspections will be logged;
- All the main service roads within the southern ancillary operations area will be metalled;
- All other service roads and areas will be regularly graded;
- Vehicle speed limits across the site will be limited to 15mph to minimise dust arisings;
- Vehicles are required to pass through a wheel washing facility prior to leaving the site to prevent the deposition of material onto the public highway;
- Mechanical road sweeper and/or towed spray bowser will prevent waste surfaces and haul roads from becoming dry and dusty, especially during periods of dry weather;
- Water sprays or surface binders will be utilised to maintain damp surfaces on exposed tip and stockpile faces and any exposed friable surfaces during dry and windy (>10m/s) weather;
- A misting/spray suppression system will be installed along the boundary acoustic fence located along the edges of the waste stocking and treatment areas;
- Earth bunds and tree lines along site perimeter to be maintained during the operational life of the restoration activities; and
- Dust and PM10 monitoring will be carried out.

4.4 Dust Action Plan

4.4.1 In the unlikely event that an unacceptable dust impact is caused at a nearby sensitive receptor, and / or a complaint is received by the Site Manager, the actions detailed in this section will be implemented. Potential sensitive receptors within 1km of the site are identified in **Drawing No: AI1009/14/11**.

4.4.2 It is the responsibility of all site personnel to maintain a visual awareness of fugitive dust emissions during the working day as part of continual proactive environmental monitoring. Any significant dust emissions observed with the potential to travel beyond the site boundary will be reported to the Site Manager who will be responsible for investigating the cause and taking immediate action, i.e. the implementation of the Dust Action Plan to minimise further emissions.

- 4.4.3 If an activity at the site results in the generation of unacceptable levels of dust, then that activity shall cease until sufficient measures have been adopted which prevent or minimise the dust emission. Unacceptable levels of dust are classified as visible plumes of dust which have the potential to leave the site boundary. Unacceptable dust impacts off site include evidence of settled dust on surfaces of the nearest sensitive receptors that are directly attributable to operations associated with this Management Plan.
- 4.4.4 The Site Manager will also be responsible for weekly recording of monitored dust levels and conditions that could lead to the potential for fugitive emissions of dust to occur. However, general daily visual checks / observations will be carried out by all operational staff as part of their normal operational procedures which will consider the potential for fugitive emissions in a proactive manner, this will be in relation to:
- Dry surfaces where mud or debris is present;
 - Any part of the site where movement of vehicles can generate dust; and
 - Any part of the site where dust can be generated by wind
- 4.4.5 The Site Manager shall ensure that the primary method of dust suppression is adequate to control dust from any site activity with generation potential.
- 4.4.6 If routine visual monitoring, continual proactive monitoring or monitoring in response to a complaint that has identified the generation of significant visible volumes of dust, including dust on site and airborne dust either migrating off site or having the potential to cross the site boundary and impact identified receptors, then the following actions will be taken:
- Take immediate steps to establish the cause of the abnormal emissions.
 - Upon identification of the emission cause, the offending operation shall be suspended (if a mechanical source) or isolated (if a passive source e.g. dust residue in a storage area) and corrective actions will be undertaken. For example, via mechanically sweeping site surfaces to remove dust and debris build up in external storage areas.
 - Implement appropriate corrective action(s);
 - Suspend or isolate the offending emission source until corrective actions have been completed.
 - Once corrective actions have been completed, activities at the offending emission source will recommence under supervision from the TCM or nominated deputy for at least 30 minutes. If no further dust emissions are observed, then activities can continue without TCM (or nominated deputy) supervision.
 - In the event that further emissions are observed, activities will be suspended again, and the relevant corrective actions / supervision will be repeated until no longer required.
 - All actions and explanations will be recorded within the site logbook / diary.
- 4.4.7 In the event that control methods cease to adequately deal with an emission of dust from waste operations, appropriate arrangements will be made by the TCM to suspend operations until the situation that gave rise to the emission has been resolved. The Environment Agency will be informed at the earliest appropriate opportunity.

Table DEMP4: Source-Pathway-Receptor Model for Dust Emissions associated with Waste Activities carried out at Croft Quarry

Source	Pathway	Receptor ¹	Type of Impact	Dust Control Measures
Mud and dusts on site surfaces	Wind whipping or kick-up by traffic from the build-up of mud on roadways and other site surfaces during dry weather conditions	R2-R23	Nuisance dust, health impacts from fine particulates, and smothering of habitats	<p>All deliveries or dispatches of waste to be sheeted or enclosed.</p> <p>All vehicles to be inspected prior to leaving site. Wheel cleansing facilities to be provided / utilised as appropriate.</p> <p>Internal roads will comprise hard surfacing to minimise tracking of mud and debris onto public roads. Where public roads will be monitored daily and more frequently during adverse weather conditions.</p> <p>All other service roads and areas will be regularly graded;</p> <p>The site entrance will be inspected daily for evidence of mud and debris. Daily litter inspections will be carried out across the site.</p> <p>Site entrance to be mechanical swept to remove mud and debris deposited. Litter picking to be carried out on signs of litter generation. The source of any litter will also be investigated and remedied.</p> <p>Water bowsers will be used to dampen site surface during dry conditions.</p> <p>Dust, PM10 and asbestos fibre monitoring will be carried out.</p>
Waste deliveries, and internal and off-site transfers	Dust and debris falling off transport vehicles, particularly for waste deliveries and dispatches of potentially dusty wastes that are not enclosed or sheeted.	R2-R23	Nuisance dust, health impacts from fine particulates and asbestos fibres, and smothering of habitats	<p>All deliveries or dispatches of waste to be sheeted or enclosed.</p> <p>All vehicles to be inspected prior to leaving site. Wheel cleansing facilities to be provided / utilised as appropriate.</p> <p>Rail deliveries to be unloaded within the Rail Handling Shed.</p> <p>Dust, PM10 and asbestos fibre monitoring will be carried out.</p>

Source	Pathway	Receptor ¹	Type of Impact	Dust Control Measures
Waste storage and permanent waste deposits	Wind whipping of fine-grained particulates from waste surfaces then transport through the air	R2-R23	Nuisance dust, health impacts from fine particulates and asbestos fibres, and smothering of habitats	<p>All delivery and dispatch vehicles/containers (road and rail) to be sheeted or fully enclosed.</p> <p>The Site Manager or instructed site personnel will undertake regular inspections of site surfaces and the public highway in order to identify the need for any cleaning requirements. Observations from all inspections will be logged.</p> <p>Water sprays or surface binders will be utilised to maintain damp surfaces on exposed stockpile faces and any exposed friable surfaces during dry and windy (>10m/s) weather.</p> <p>Waste materials contaminated with asbestos fibres will be subject to pre-arranged delivery and immediate deposit within pre-prepared tipping area, over which clean cover material will be placed immediately.</p> <p>A misting/spray suppression system will be installed along the boundary acoustic fence located along the edges of the waste stocking and treatment areas;</p> <p>Existing earth screening bunds and tree lines along site perimeter to be maintained during the operational life of the restoration activities.</p> <p>Dust, PM10 and asbestos fibre monitoring will be carried out.</p>
Loading of dumpers and conveyors/hoppers	Release into air as wastes are dropped into dumpers and hoppers then transport through air	R2-R23	Nuisance dust, health impacts from fine particulates and asbestos fibres, and smothering of habitats	<p>All plant operators to be fully trained.</p> <p>Drop heights to be minimised.</p> <p>A misting/spray suppression system will be installed along the boundary acoustic fence located along the edges of the waste stocking and treatment areas.</p> <p>Existing earth bunds and tree lines along site perimeter to be maintained during the operational life of the restoration activities.</p> <p>Dust, PM10 and asbestos fibre monitoring will be carried out.</p>

Source	Pathway	Receptor ¹	Type of Impact	Dust Control Measures
Physical Treatment of Waste	Agitation during treatment then transport through the air	R2-R23	Nuisance dust, health impacts from fine particulates, and smothering of habitats	<p>All plant operators to be fully trained.</p> <p>A misting/spray system will be installed on the treatment plant.</p> <p>Existing earth bunds and tree lines along the site perimeter to be maintained during the operational life of the restoration activities.</p> <p>Dust, PM10 and asbestos fibre monitoring will be carried out.</p>
Placement of wastes in active tipping area	Release into air as wastes are discharged from conveyor and dumpers, and moving around by dozers and excavators	R2-R23	Nuisance dust, health impacts from fine particulates and asbestos fibres, and smothering of habitats	<p>All plant operators to be fully trained.</p> <p>Drop heights to be minimised.</p> <p>Existing earth bunds and tree lines along the site perimeter to be maintained during the operational life of the restoration activities.</p> <p>Waste materials contaminated with asbestos fibres will be subject to pre-arranged delivery and immediate deposit within pre-prepared tipping area, over which clean cover material will be placed immediately.</p> <p>Dust, PM10 and asbestos fibre monitoring will be carried out.</p>

¹ - Refer to Table DEMP1

4.5 Visual Dust Monitoring

- 4.5.1 Routine visual monitoring for dust will be carried out daily within the operational hours of the site by the Site Manager or nominated deputy. Inspections will generally look out for the presence of dry, dusty external surfaces and for any dust being whipped by wind. Monitoring will also be carried out for any visual signs of dust emanating from the building entrance point.
- 4.5.2 Whilst carrying out their roles on site, site staff will observe the ground, surfaces, equipment and immediate environment to check whether dust is being emitted from any part of the site.
- 4.5.3 The results of the daily visual dust monitoring will be recorded on a check sheet for the site, included as **Appendix DEMP1**. These records will be kept on site in the office.
- 4.5.4 The Site Manager will review the feedback from the visual monitoring by reviewing the check sheet and conducting spot checks themselves. These reports will be provided to senior management for review.
- 4.5.5 In the event that dust is detected, additional visual dust monitoring will be carried out. Should complaints from neighbouring receptors be received, additional visual monitoring will be carried out to identify the source and remedial action implemented.

4.6 Nuisance Dust and Particulate Matter Monitoring

- 4.6.1 A monitoring plan has been prepared in support of planning consent held for the ongoing management of mineral and waste relating activities carried out at Croft Quarry.

Methodology

- 4.6.2 The Monitoring Scheme is a proactive dust monitoring programme to establish the dust environment for Croft Quarry. Blaby District Council (BDC) instigated an ongoing routine monitoring programme around Croft Quarry in April 2001. Monitoring utilises frisbee-type dust deposit gauges with foam inserts and bird guards, located at receptors in the vicinity of the quarry. These gauges accord with the preferred method stipulated within Environment Agency guidance 'Monitoring methods for ambient air – Technical Guidance note M8', (The Environment Agency, 2011) and 'Good Practice Guide: Control and Measurement of Nuisance Dust and PM10 from the Extractive Industries' (Minerals Industry Research Organisation, 2011) and are used to establish the mean rate of environmental dust deposition.
- 4.6.3 To demonstrate compliance with extant planning permissions and to provide pertinent coverage for future site development the dust monitoring locations are presented in **Table DEMP5** and **Drawing No. AI1009/14/05**. All monitoring locations will be subject to periodic review and modified if appropriate.

Table DEMP5: Dust Monitoring Locations

Ref ID	Location	Description	Measure Parameter
1	Pumping Station, Croft Hill Road, Huncote	North of quarry, in compound	Monthly rates of dust deposition Asbestos Screening
2	Ratcliffe Drive, Huncote	Northeast of quarry in the garden of property	
3	The Rectory, Huncote Road, Croft	Southwest of quarry in the side garden of property	
4	Dovecote Lane, Croft	West and south of quarry in the garden of property	
5	1 Shades Close, Croft	South-southwest of quarry in the garden of property	
6	Winston Avenue	South of quarry	

4.6.4 Samples for mean rates of dust deposition will be collected on a monthly basis and monthly Certificates of Analysis produced, to be disseminated to the Regulatory Authorities. Results will be correlated on an annual basis with the production of a brief report, which shall review the performance of the dust mitigation and identify the need for extra mitigation and monitoring if appropriate. In the event of receptor-based monitoring locations recording an exceedance of the dust deposition guidance value of 200mg/m²/day then an investigation will be instigated to identify the provenance of any fugitive dust emissions. This will permit appropriate amelioration.

4.6.5 If deemed necessary, any ambiguous samples from the gauges may be analysed in order to apportion the source of dust. Analysis will utilise established particle characterisation techniques¹.

4.6.6 In addition to monitoring the rates of dust deposition, the measurement of PM₁₀ concentrations will also be undertaken at a location to be established based upon its suitability to provide representative data in a secure location outside the site boundary. Measurement equipment will comply with the requirements of the National Air Quality Strategy and EU Daughter Directive. The concentration of PM₁₀, based on 24-hour mean gravimetric (or gravimetric equivalent) values will be provided on a monthly basis to be disseminated to the Regulatory Authorities. Results will be correlated and reviewed on an annual basis with the production of a brief report.

Emission Limits

4.6.7 The impact of fugitive emissions from mineral and waste dusts can include: soiling of surfaces, especially with a high contrast material; the physical impact on sensitive industries and facilities; the physical and chemical impact on vegetation; the effect of adverse publicity influencing personal expectations; and individuals' experiences. Because of this wide range of interpretation, the perception of nuisance impact is problematic. This has resulted in no universal standards or guideline limits having been agreed or imposed. A frequently used maximum associated with the mean rate of soiling using dust deposition gauges is 200mg/m²/day, based upon monthly sample collection^{2,3}. Therefore, a value

¹ J R Merefild, I Stone, J. Barron and J Jones (1999). *Techniques for tracing fugitive mineral dusts for nuisance control and health risk. Transactions of the Institution of Mining and Metallurgy, vol 108, A77-A8 pp 1, Jan-Apr 1999.*

² MIRO (2011). *Good Practice Guide: Control and Measurement of Nuisance Dust and PM₁₀ from the Extractive Industries*

³ Environment Agency, 2013. *Monitoring of particulate matter in ambient air around waste facilities: Technical Guidance M17.*

of **200mg/m²/day** will be used to assess 'nuisance' outside the curtilage of the site.

- 4.6.8 Notwithstanding the above, in the event that there are visible airborne dust emissions outside the boundary of the site, the operations responsible shall be identified and appropriate mitigation measures introduced. The offending operations shall either suspend or cease if control measures cannot be adequately implemented.
- 4.6.9 Data from PM₁₀ monitoring will be considered against National Air Quality Strategy objectives. This currently sets an annual gravimetric mean of **40 µg/m³**, with **50µg/m³** measured as a 24-hour mean - not to be exceeded more than 35 times per annum.
- 4.6.10 The dust samples will also be analysed for the presence of asbestos fibres.

5 REPORTING AND COMPLAINTS RESPONSE

5.1 Engagement with the Community

5.1.1 AI will maintain an open communication channel with the local community and receptors who may be affected by the Site's operations. The Site/Operations Manager will liaise with neighbouring residential properties annually to determine if the Site is resulting in any level of annoyance. Appropriate contact information (e.g. telephone number and e-mail) will also be displayed at the site.

5.1.2 The Site will be a reliable source of information to the community and readily available to answer any questions or queries. Active participation in the community will ensure that communication channels such as emails and phone calls are welcomed, and an appropriate response is formed by the Site/Operations Manager.

5.1.3 The Site also operates a comprehensive complaint reporting and resolution procedure which can be utilised by members of the public and neighbours.

5.2 Means of Contact

5.2.1 Croft Quarry will be readily contactable to outside organisations and to members of the public. The site signage board (placed in a visible location) will contain the necessary details for both the site operations and the Environment Agency, including contact details and the site's Environmental Permit Reference number.

5.2.2 Contact details will also be made available through the local community liaison groups. Therefore, should an off-site issue arise, the complainant has a means of getting in touch with the operator.

5.2.3 As part of the facility operation and development, a community engagement plan will be developed if found to be necessary, the purpose of which would be to identify all sensitive receptors and formulate a communications plan. The community engagement plan will detail the complaints management and reporting procedures, this will include, but will not be limited to:

- Information provided to the local neighbours (via the Environment agency) regarding the point and method of contact for the quarry in the event dust emissions has been detected or they want to discuss any operational concerns;
- Advice provided to the neighbours that any complaints / concerns will be addressed immediately following identification / notification and contingency action implemented; and
- The neighbours will be informed of any corrective action and a follow up call will be carried out if necessary.

5.3 Reporting of Complaints

5.3.1 Any validated complaints received directly to site which directly relate to waste activities will be notified to the Environment Agency as soon as is practicably possible.

5.3.2 Further observational monitoring will be instigated at the location of the complaint and on site in order to determine the extent and location of the fugitive emission, and the materials and / or process at the source. In order to assist in the investigation and determine the source of the emission, as much information and detail about the complaint as possible will be recorded.

- 5.3.3 The site telephone number will be clearly displayed at the site entrance and local residents are encouraged to immediately ring the site in the event of an off-site dust emissions breach.
- 5.3.4 In the event of a complaint regarding dust emissions, this will be conveyed to the Unit Manager as soon as practicable for investigation.
- 5.3.5 Upon receipt of the dust complaint at the site the details will be recorded on the integrated Environment, Health and Safety (EHS) database complaint logging system. Details to be recorded include:
- Complainant name, address and telephone number.
 - Name, address, and telephone number of complainant;
 - Time complaint received;
 - Description of dust issue;
 - Location of dust issues if not as address above; and
 - Date(s) and time(s) to which the complaint relates.
- 5.3.6 If the dust complaints are received during the working day and the dust event is ongoing, the responsible person, as selected from site personnel, shall immediately visit the location of perceived off-site dust to subjectively determine dust presence/absence and intensity.
- 5.3.7 Upon substantiating an impact site operations and conditions, including meteorological conditions will be inspected to determine if it is the source the complaint.
- 5.3.8 Where waste operations are identified as the source of the compliant remedial actions in line with those presented in **Section 4.0** will be implemented as soon as reasonably practicable. Remedial action will typically be instigated within one working day. If repeat complaints are received following the implementation of all available remedial measures have the offending operations will be halted until alternative remedial measures can be implemented.
- 5.3.9 Details of all response and remedial actions undertaken following receipt of a complaint will be logged against the EHS database record.

5.4 Complaint Screening

- 5.4.1 As part of each fugitive emission complaint received, these will be objectively addressed against the wider environment to ensure that the source of the emission is traced back to the correct source. Due to the proximity of adjacent operations with the potential to generate dust pollution, it is essential that the source is correctly identified in order that appropriate mitigation measures can be applied effectively and correctly. If necessary, the complaint will also be assessed against previous records to place the nature of the complaint into context.

5.5 Complaint Investigation

- 5.5.1 In the event that fugitive emissions are found to be causing a problem at or around the facility, as determined and confirmed by investigation into offsite complaints or during routine monitoring; measures will be taken to determine the source, and the following courses of action as detailed below shall be taken within one full (working) day of complaint receipt:

- Additional dust monitoring as detailed above to identify the extent of the plume and potential cause for the dust i.e. waste material and / or process activity;
- Examination of the operational activities at the Facility at the time of the dust complaint or dust identification;
- Examination of the meteorological conditions at the time of the complaint or dust identification;
- Carry out a review of the operational procedure and process controls and instigate any control measures immediately following identification of the problem;
- Further dust monitoring will be carried out to ensure the issue has been addressed and to monitor the effectiveness of any control measures undertaken.

5.5.2 The complainant will be kept informed (via telephone or email) on how their concerns were dealt with and of the final outcome to ensure they are satisfied.

5.5.3 Records of complaints received (i.e. completed Dust Complaint Forms) will be kept in the appropriate file in the site office for inspection and reviewed by both internal and external personnel.

5.6 Management Responsibilities

5.6.1 The complaints will be handled by the Site Manager who will investigate it as soon as possible (within 1 working day). Upon filling out the 'Dust Complaint Form', the Site Manager will review the site conditions and come to a conclusion on how best to tackle the issues raised by the complainant. Once an action is in place, the Site Manager will ensure that the complainant is informed, and the final outcome will be recorded on the 'Dust Complaint Form'.

5.6.2 Where more than one complaint is received within a month, senior management will be notified, and appropriate remedial measures identified and implemented accordingly.

6 ACTIONS, CONTINGENCIES & RESPONSIBILITIES DURING PROBLEM EVENTS

6.1 Default Procedures

6.1.1 In the event that an emission of dust is identified during the normal course of operations, either through daily routine monitoring, or in response to off-site complaints, the default procedure will be to investigate the emission in line with the procedures outlined in **Section 5.5**, which is an appropriate response to both off-site complaints as well as on site investigations following on from routine inspections.

6.1.2 It is the responsibility of the site management team (Site Manager/TCM and associated supervisors) to ensure procedures as set out in the DEMP are put into action.

6.2 Emergency Procedure

6.2.1 Monitoring for dust emissions will be undertaken during a time in which extreme release of dust is experienced e.g. delivery of material to site, processing of dusty waste. Additional mist/water sprays will be deployed if necessary and operations which may lead to increased dust emission will be temporarily stopped.

6.2.2 Consideration will also be made as to the suspension of receipt of dusty/powdery wastes and / or the removal of waste from the site that is held in storage areas (if necessary).

6.3 Event Reporting

6.3.1 In the event of any significant environmental emergency / incident, a representative of Aggregate Industries will notify the Environment Agency by telephone immediately, but first having due regard for the incident at hand and any remediation actions required to ensure the safety of site personnel and the immediate environment.

6.3.2 Details of any environmental incident will be confirmed to the Environment Agency in writing by the next working day after identification of the incident. This confirmation will include the time and duration of the incident, the receiving environmental medium or media where there have been any emissions as a result of the incident, an initial estimate of the quantity and composition of any emission, the measures taken to prevent or minimise any further emission and a preliminary assessment of the cause of the incident.

6.3.3 Any incident notified to the Environment Agency will be investigated, and a report of the investigation sent to the EA. The report will be detailed (as a minimum):-

- the circumstances of the incident;
- an assessment of any harm to the environment; and
- the steps taken to bring the incident to an end.

6.4 Problem Resolution

6.4.1 Once the identified problem has been rectified, a report will be prepared assessing the nature of the incident and the actions taken to resolve the issue. Additionally, the report will detail the changes that could be made to the

operational practises which would ensure, wherever possible, that the issue would have less of a chance of arising again in the future.

- 6.4.2 This Dust Emissions Management Plan and the dust/particulate related assessments of risks presented in the Environment Risk Assessment (*Doc. Ref.: AI1009/10*) will also be reviewed if management practices require updating.
- 6.4.3 This information will be provided to the Environment Agency in accordance with the Event Report procedures discussed in **Section 6.3** above. Any improvements or amendments to operational practices will be discussed with the EA prior to their implementation.

7.0 REPORT CLOSURE

- 7.1.1 This document will be subject to on-going review and revision where necessary. This review will be undertaken in response to events which may occur on site, and also to ensure that it accords with the latest regulations and associated guidance documents. The review of the DEMP for the site will occur at least once per annum.
- 7.1.2 All revisions to the document will be recorded and details of said revisions will be described as part of the required record relating to document review. This is a requirement in any event as part of AI's Quality and Environmental Management Systems and procedures.



APPENDIX DEMP1
Visual Dust Monitoring
Check Sheet



VISUAL DUST MONITORING CHECK SHEET

SITE LOCATION:

REF. NO.:

Name of site personnel carrying out visual dust monitoring:	
Monitoring Location:	
Date and Time of Monitoring:	
Time since last visual monitoring checks (days):	
Site activities being carried out at the time of monitoring (e.g. waste loading / unloading):	
Weather Conditions (e.g. dry, rain, high winds etc.):	
Temperature (e.g. very warm, warm, mild, cold or °C if known):	
Wind strength and direction (e.g. light, steady, strong, gusting, or speed in mph if known):	
Description of dust on site (i.e. no dust visible, some areas of very light dust covering surfaces, thick layer of dust on site surfaces):	
Dust from the site visible on public access roads? (Y / N):	
Has road sweeping already been carried out at the time of visual monitoring? (Y / N):	
Monitoring personnel's description of dust:	
Any other relevant information:	
Potential on-site sources that could give rise to dust (in the event that dust is observed):	
Actions taken in the event that dust is observed on site surfaces or on public access roads (e.g. hosing, road sweeping etc.):	
Final outcome (were actions taken successful?):	
Date and Time of next scheduled visual dust monitoring:	
Comments	

Form Completed by:		Signed:	
		Date:	
Approved by:		Signed:	
		Date:	



MONITORING PROCEDURE:

1. The duration spent at each monitoring locations should be a minimum of 1 minute;
2. During this time the assessment record for the location should be completed;
3. This form should be completed for each monitoring visit using observations and the on-site weather station;
4. Completed assessment sheets should be kept in the record folder;
5. It is important to record site specific information for the monitoring visit and any departures from normal operating conditions;
6. It may be of benefit for an independent individual to accompany the regular assessor to periodically check the data quality;
7. Frequency of monitoring should be assessed at regular intervals, dependent on the potential for dust generation with the assessment times being varied to cover different on-site activities.