MICK GEORGE

DUST EMISSIONS MANAGEMENT PLAN

HUSBANDS BOSWORTH QUARRY,
WELFORD ROAD,
HUSBANDS BOSWORTH,
LEICESTERSHIRE
LE17 6JH

Document Reference: MG1001/12.R0
May 2022

SiriUS Environmental

Project Quality Assurance
Information Sheet

DUST EMISSIONS MANAGEMENT PLAN
HUSBANDS BOSWORTH QUARRY, WELFORD ROAD, HUSBANDS BOSWORTH, LEICESTERSHIRE, LE17 6JH

Report Status : Final

Report Reference : MG1001/12.R0

Report Date : May 2022

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Revision	Date	Amendment Details	Author	Reviewer
0	May 2022	First issue	MK	DT

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DUST EMISSIONS MANAGEMENT PLAN

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1.0 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 Mick George Limited ('Mick George') in support of an Environmental Permit Application for the operation of an inert landfill facility to enable the restoration of Husbands Bosworth Quarry, Welford Road, Husbands Bosworth, Leicestershire, LE17 6JH. This will operate in line with the requirements of the Environmental Permitting (England and Wales) Regulations 2016.

1.1.2 The new landfill facility at Husbands Bosworth Quarry (herein referred to as 'the site') will operate in accordance with an Environmental Management System accredited to ISO14001. The inert waste deposits will be placed directly over the underlying natural clays and mudstone present across the base of the worked quarry, with the sidewalls of the quarry engineered with buttressing and an Artificially Established Geological Barrier (AEGB).

1.1.3 Waste deliveries to site will be undertaken via surfaced access and internal haul roads and wheel cleaning equipment will also be present. Deliveries will be directed to the active tipping area where it will be handled and compacted using a combination of tracked dozers.

1.1.4 The DEMP considers the potential for the generation of fugitive dust emissions from the delivery and deposition of waste into the active tipping area, as well as the subsequent handling and compaction of the waste. This DEMP outlines the site conditions, operational processes and controls to be applied and the monitoring to be undertaken to avoid potential nuisance and environmental harm from occurring.

1.1.5 This DEMP has been prepared with cognisance to the materials being processed 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. This is a live document which will be updated where necessary.

1.2 Site Location and Layout Description

1.2.1 This DEMP relates to the operation of an inert landfill at Husbands Bosworth Quarry, Welford Road, Husbands Bosworth, Leicestershire, LE17 6JH. The site is centred on National Grid Reference (NGR): SP 65056 83878. The site is within the local authority of Harborough District Council. The site location is shown in **Drawing No. MG1001/14/01**, additionally the proposed site boundaries are shown in **Drawing No. MG1001/14/02.**

1.2.2 The site layout and proposed waste deposition is illustrated in **Drawing No. MG1001/14/05.** The inert waste deposits will be placed directly over the Dyrham Formation which in turn overlies the Charmouth Mudstone Formation which extends to at least 130m bgl. The quarry sidewalls comprise mudstone of the Dyrham formation, glaciofluvial deposits, glacial till and topsoil deposits. As aforementioned, an AEGB comprising suitable site-won or imported cohesive materials will be constructed over the sidewalls. Due to the stability factors and construction techniques, the AEGB will be a minimum of 1m thick over the sidewalls.

1.2.3 The site will comprise surfaced access roads, graded internal haul routes, a weighbridge and wheel cleaning equipment. Site offices and welfare facilities will also be present on site. There will also be a mineral processing and bagging operation which will be unrelated to the landfilling activity. Vehicles will access the facility via an existing service road which connects to Welford Road (A5199) and existing weighbridge facilities located in the eastern extents of the quarry. Deliveries will be subsequently directed to the active tipping area via designated internal haul roads that route into the landfill area. The deposited waste will be handled and compacted using a combination of tracked dozers.

Operational Hours

1.2.4 The site operational hours will ensure that works carried out at the site will not continue into unsociable hours. Working hours will be restricted to:

- Monday – Friday: 07:00 – 18:00 hrs
- Saturday: 07.00 – 13.00 hrs
- Sunday / Public Bank Holidays: Closed

1.2.5 Maintenance of plant and equipment will be undertaken during operational hours only.

2.0 SENSITIVE RECEPTORS

2.1 Receptor Identification

2.1.1 The site lies approximately 230m southeast of the village of Husbands Bosworth, Leicestershire. Husbands Bosworth Quarry falls within the bounds of Bosworth Estate which covers an area of c. 147 ha. The Husbands Bosworth Quarry covers an area of approximately 50 ha, of which the landfill footprint will occupy c. 44.8ha. Access to the site is via Welford Road (A5199) located to the west of the quarry which joins Station Road (A4303) and the A1.

2.1.2 Agricultural and residential land use dominate the surrounding area. Agricultural land occupies large areas of land to the east, south and west of Husbands Bosworth Quarry, with a smaller area of agricultural land situated to the north. The village of Husbands Bosworth lies northwest of the site. Coombe Hill Site of Special Scientific Interest (SSSI) (designated for its chalk grassland and acid heathland) and Bosworth Mill Meadow Site of Special Scientific Interest (SSSI) (designated for its biodiversity and rich plant life) are located c.2.5km to the east and c.2km southwest of the site respectively. North Kilworth Local Nature Reserve (LNR) is situated to the c. 2.5 km west of the site and Bosworth Broad Lane Pond Local Wildlife Site (LWS) lies c. 810m northwest of the site. A public footpath / bridleway runs along the south-western boundary of the quarry void.

2.1.3 A full list of potential sensitive receptors to dust and other emissions (such as nitrogen dioxide from combustion sources including road vehicles and mobile plant) within 1km of the site are listed in **Table DEMP1**, below. Their locations are illustrated in **Drawing No MG1001/14/10**.

Table DEMP1: Identified Potential Sensitive Receptors to Dust and Other Emissions (e.g. Nitrogen Dioxide) within 1km of Husbands Bosworth Quarry

ID	Receptor Name	Type of Receptor	Approximate nearest distance from the operational boundary	Direction from proposed landfill footprint
R1	River Welland	Water Body	Adjacent	East
R2	Welland Waste Management	Commercial / Industrial	580m	Northeast
R3	Peeble Hall	Commercial / Industrial	1000m	Northeast
R4	Woodsite Lodge	Residential	760m	Northeast
R5	Dene Lodge	Residential	910m	Northeast
R6	Theddingworth Road (A4304)	Public Highway	290m	North
R7	Welford Road (A5199)	Public Highway	380m	West
R8	Bosworth Hall (and associated grounds)	Residential / Commercial	Hall: 380m Grounds: Adjacent	North
R9	Sewage Treatment Works	Commercial / Industrial	590m	Northwest
R10	Husbands Bosworth Village	Residential	210m	Northwest
R11	Dairy Farm Day Nursery	Educational	415m	Northwest
R12	Hunters Lodge Care Home	Residential	690m	Northwest
R13	Husbands Bosworth Church of England Primary School	Educational	450m	Northwest

ID	Receptor Name	Type of Receptor	Approximate nearest distance from the operational boundary	Direction from proposed landfill footprint
R14	Husbands Bosworth Children's Park & Dog Walking Field	Recreational	510m	West
R15	Husbands Bosworth Medical Centre	Commercial / Industrial	350m	West
R16	Cemetery	Recreational	440m	West
R17	Allotments	Recreational	430m	West
R18	Husbands Bosworth Landfill Site	Commercial / Industrial	290m	Southwest
R19	Gliding Centre	Recreational	410m	South
R20	NBJ Carpentry	Commercial / Industrial	580m	Southwest
R21	Spring	Spring	400m	West
R22	Spring	Spring	35m	East
R23	Unnamed Stream	Waterbody	Adjacent	South
R24	Gravel Pit Spinney	Woodland (Deciduous)	On-Site	Within
R25	Lodge Spinney	Woodland (Deciduous)	Adjacent	North
R26	Hollow Spinney	Woodland (Deciduous)	75m	East / Southeast
R27	Carland Spinney	Woodland (Deciduous)	285m	Southeast
R28	Unnamed Deciduous Woodland	Woodland (Deciduous)	90m	South
R29	Agricultural Land	Agricultural	Adjacent	All Directions
R30	Public Footpaths & Bridleways	Public Rights of Way	Adjacent	Within
R31	Secondary A / Secondary Undifferentiated Aquifer (Sand and Gravels)	Groundwater	Adjacent	All Directions
R32	Great Crested Newts	Amphibian	On-Site	Within
R33	Sand Martins	Bird	On-Site	Within
R34	Grand Union Canal	Waterbody	810m	North

2.1.4 The distances specified in the **Table DEMP1** represent the distance from the permit boundary to the receptor. In some instances the distance between operation areas of the landfill footprint and the receptors may be greater.

2.1.5 The site lies within a Nitrate Vulnerable Zone (NVZ) which are designated by DEFRA and the Environment Agency for Surface and Groundwater as being at risk from agricultural nitrate pollution. The designations are made in accordance with the Nitrate Pollution Prevention Regulations 2015. The site does not lie within a Groundwater Source Protection Zone (SPZ). Additionally, the site is not located within an Air Quality Management Area (AQMA). The closest AQMA to the site boundary lies approximately 12km to the south-west.

2.2 Meteorological Setting

2.2.1 The fugitive emissions of dust from the site could be affected by local weather conditions, in particular wind direction and rainfall.

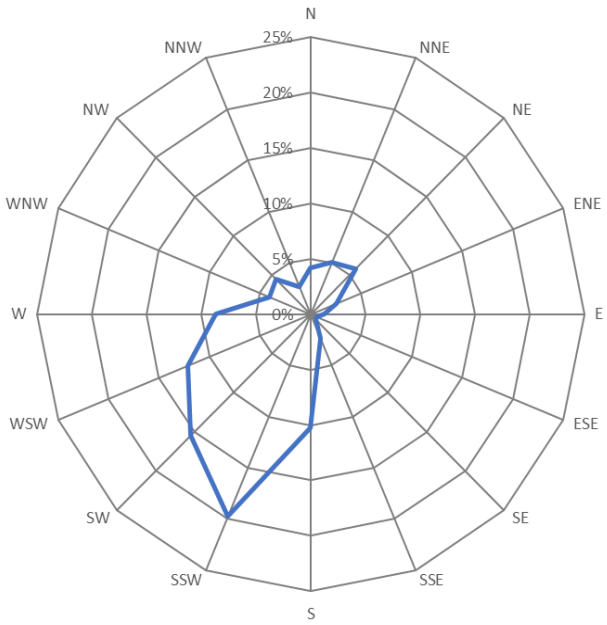
2.2.2 The nearest meteorological recording station to the site is the Coventry Airport, which lies 30km west-southwest of Husbands Bosworth Quarry (International Civil Aviation Organisation (ICAO) Airport Code: EGBE). The National Grid Reference (NGR) for Coventry Airport is SP 35279 74420. This weather station is deemed the most appropriate for use in order to characterise the site due to its proximity and its inland environmental setting. Wind patterns at the Coventry Airport Station are likely to be similar to those experienced at the site.

2.2.3 Data from the RenSMART wind data archive, for a 10-year period between 2000 and 2010 has been utilised for the Coventry Airport Station in order to typify the meteorological conditions likely at the site. The wind rose, as shown by **Figure DEMP1** shows the percentage of wind vector that could be generated in each of the 16 points of a compass.

2.2.4 The wind rose indicates that the predominant wind directions are from the south-western quadrant, which makes up ~66% of the winds. It can be observed from **Figure DEMP1** that the wind will be blowing primarily from the south-southwest and southwest. Therefore, the village of Husbands Bosworth is cross-wind of the site relatively to the prevailing winds.

Figure DEMP1: Wind rose for Coventry Airport Meteorological Recording Station between 2000 – 2010 inclusive (Source: RenSMART)

Direction	Percentage
N	4.15%
NNE	5.04%
NE	5.79%
ENE	2.54%
E	1.27%
ESE	0.60%
SE	0.68%
SSE	2.35%
S	10.28%
SSW	19.77%
SW	15.50%
WSW	12.16%
W	8.66%
WNW	4.08%
NW	4.47%
NNW	2.66%



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 facility. The locations of these are shown in relation to the site in **Drawing No.: MG1001/14/12.**

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

Source No.	Company	Address	Type of Business	Distance from the site (m)	Direction from the site
1	GRS Building Products	Welford Road, Husbands Bosworth, Market Harborough, LE17 6JH	Construction materials wholesaler	Adjacent	SW
2	-	Theddingworth Road	Public Highway	310	NNE
3	-	Welford Road (A5119)	Public Highway	370	W
4	Husbands Bosworth Landfill Site (GRS Earth Solutions)	Welford Road, Husbands Bosworth, Market Harborough, LE17 6JH	Waste Management Service	400	SW
5	-	High Street	Public Highway	470	NW
6	-	Berridges Lane	Public Highway	510	NNW
7	-	Kilworth Road (A4303)	Public Highway	515	NW
8	-	Bell Lane	Public Highway	540	NNW
9	Welland Waste	Theddingworth Road, Lutterworth, LE17 6NJ	Power station / Recycling Facility	580	ENE
10	NBJ Limited	Airfield Park, Sibbertoft Road, Lutterworth, LE17 6JA	Joiner / Construction	585	SSW
11	-	Station Road	Public Highway	730	SW
12	-	Sibbertoft Road	Public Highway	845	S
13	-	Leicester Road (A5199)	Public Highway	995	NNW

3.0 OPERATIONS AT HUSBANDS BOSWORTH QUARRY LANDFILL

3.1 Site Activities

3.1.1 The landfill operations at Husbands Bosworth Quarry will operate under the effective system of management procedures which the operator currently have in place on a national basis. Mick George Limited operates in accordance with ISO14001 (Environmental Standard Certification), ISO9001 (Quality Management System Certification) and IS18001 (Health and Safety Management System Certification).

Waste Deliveries

3.1.2 Following pre-acceptance checks, waste will be delivered to the site via the access off Welford Road (A5199). Waste delivery vehicles will be fully sheeted and directed to the weighbridge for waste acceptance checks and visual inspections of the waste will be conducted. The majority of delivery vehicles will have a European Emission Standard (Euro Rating) of either Euro 5 or Euro 6. Owing to the inert nature of the waste (soil and stones), the waste will not be containerised upon arrival to the site but as the delivery vehicles will be sheeted, fugitive emissions will be prevented.

3.1.3 During the visual inspections, an appropriately trained staff member will determine the basic characteristics of the waste to ensure it accords with the pre-acceptance paperwork, as well as the permitted waste types and quantities at the site.

3.1.4 Verification testing will also be completed where the total quantity of waste to be received from a single source or carrier is to exceed 2,000 tonnes in any single project or year. At least one sample will be taken of each homogenous waste source, where waste sources are deemed heterogenous, a minimum of three samples will be taken.

3.1.5 Audits of the waste acceptance records will be conducted annually and will contain information on the waste acceptance checks carried out, as well as an assessment of the waste analysis results for relevant waste streams. Copies of these audits and records will be maintained until the Environmental Permit for the waste recovery activity has been surrendered.

3.1.6 Waste delivery vehicles will enter the site and access the active tipping area via surfaced access and internal haul roads respectively.

Waste Storage

3.1.7 Following the successful completion of the waste-acceptance checks, incoming wastes will be directed to the active tipping area for immediate deposition, which limits waste handling. Any waste source that requires further verification testing to be carried out will be temporarily stored within the landfill void area pending the receipt of testing results.

Waste Deposit

3.1.8 The inert waste will be deposited in the active tipping area and will be handled and compacted using a combination of tracked bulldozers. The proposed inert landfill activity will accept up to 350,000 tonnes of waste per annum. A plan depicting the site layout and waste deposition is included as **Drawing No. MG1001/14/05**.

3.2 Potential Sources of Dust

3.2.1 Due to the nature of the proposed inert material to be deposited, the handling and deposition the waste may result in dust generation. Dust may be generated during waste deliveries via vehicle movements and the deposition and compaction of the waste at the landfill's active tipping face, particularly in dry conditions.

3.2.2 Accordingly, dust may arise from the following activities which could be blown off-site towards nearby receptors:

- Materials transport, unloading and deposition operations;
- Temporary storage prior to deposit in the void (this will only occur when abnormal circumstances prohibit the direct tipping of waste into the void); and
- Internal plant and vehicle movements

3.2.3 The potential sources of dust and particulate (PM_{10}) generation at the site and the associated proposed management for the control of fugitive emissions are further discussed in **Section 4.0**.

3.3 Mobile Plant and Equipment

3.3.1 The site implements the used of the following vehicles, plant and equipment for the landfilling operations:

- Dozer;
- Excavator;
- Heavy goods vehicle (HGV);
- Articulated Dumper Trucks.

3.3.2 Site infrastructure and plant will be inspected daily for damage and wear by site personnel as part of daily Operation and Management inspections. Any defects noted during these daily inspections will be logged and reported to the maintenance team, so repairs can be scheduled.

3.3.3 Records of inspections will be maintained in a site log. All plant items and equipment will be serviced and maintained according to manufacturer's schedules and recommendations to minimise the risk of breakdown.

3.3.4 Trained maintenance staff will carry out plant repairs quickly where required. Mobile plant repairs will be undertaken as soon as practicable, dependant on the availability of spares. In the event a replacement of the plant / equipment is required, the replacement will be of the lowest emission standard possible at the time of hire or purchase.

3.3.5 The site will implement a 'no-idling' policy whereby vehicles, plant and equipment will be switched off when they are not in use to reduce the emissions at the site.

3.4 Other Considerations

Water Usage / Availability

3.4.1 The site has an existing abstraction licence (Ref.: 5/31/02/*G/0014) for the use abstract of groundwater and surface waters collected from within the operational extents of the quarry. All water managed within the quarry are directed to a holding lagoon located in the south-eastern corner of mineral processing area; situated to the southwest of the landfill footprint. The capacity of the lagoon will be maintained at no less than ~15,000m^3 until the final landfill phase is restored. The wheel washing and general housekeeping measures, such as dampening down internal haul roads and cleaning site access routes will be supported by surface waters .

3.4.2 The capacity of the lagoon will be sufficient to provide enough water during periods of drought. However, in the event of a loss of water supply to the site, water tankers can be brought onto site to provide an additional supply if necessary.

4.0 DUST AND PARTICULATE (PM_{10}) 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 site. The Technically Competent Manager (TCM) will be responsible for the implementation of the Dust Emissions Management Plan (DEMP) at the site.

4.1.2 The Site Manager will ensure that this DEMP 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 emission 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 maintanence will be developed and implemented for all aspects of site operations. Maintenance will include:

- Routine scheduled inspections;
- Preventative maintanence activities;
- Reactive maintanence 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**, **Table DEMP4** and **Table DEMP5**.

4.2 Potential Sources of Fugitive Dust and Other Emissions

4.2.1 Fugitive dust emissions may occur during site operations as a result of material handling activities, movement of vehicles on the access road and within the site, abnormal operating conditions and exhaust fumes from on-site plant, delivery vehicles and staff / visitor cars.

4.2.2 Based on the information presented in the previous sections, it is considered that the potential risks of adverse health and nuisance impacts associated with dust and particulate emissions from the site are **moderate** for the following reasons:

- Any limited fugitive dust emissions from the site would likely be a coarse fraction range and would, therefore, tend to fall rapidly from the atmosphere (i.e. high deposition rates). Hence, airborne dust concentrations would be expected to decrease appreciably with distance from source due to dilution within the atmosphere and deposition onto the ground near the source.
- There are no Air Quality Management Areas (AQMA's) within the immediate vicinity of the site.
- Landfill operations will be restricted to within the quarry void which is currently c. 15m below the surrounding ground levels. Additionally, artificial topographic features, created by previously extracted overburden material, is present along the quarry's northern boundary and will separate the landfill operations from the residential properties situated to the north-west of the site in the village of Husbands Bosworth. Tree lines are also established along number of the quarry edges boundaries. These features provide shelter to the site and form barriers between the proposed landfill operations and potentially sensitive receptors.

4.2.3 The pathway for the majority of dust releases is atmospheric dispersion, either primary from the dust / particulate source (e.g. 'wind whipping' of the waste on site) or after tracking onto the public highway on the wheels of vehicles. The Source-Pathway-Receptor routes are detailed in **Table DEMP4**.

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**. The preventative and remedial measures to control dust and other emissions at the site are also summarised in **Table DEMP5**.

4.3.2 In light of the **moderate** inherent risks associated with potential fugitive dust emissions from the operations, a dust control scheme has been prepared in order to provide further confidence that the potential for any adverse impacts will be further reduced. Control measures for abating dust emissions will be based on best management practices. Details of general dust controls are as follows:

- The site operations will be overseen by a Technically Competent Manager (TCM) and all site operatives will be thoroughly trained in the use of all on site plant and equipment as well as the site procedures.
- Site staff will be trained to carry out frequent inspections of the site for evidence of dust emissions or dusty surfaces. The Site Manager (or nominated deputy) will also undertake daily Operational and Maintenance site inspections. Furthermore, all site staff will receive appropriate training in order to ensure that employees are conversant with the dust control strategy.
- The hardstanding at the site will be swept upon the identification of visible dust build-up on hardstanding and / or machinery surfaces by the TCM (or a nominated deputy) during the daily Operation and Maintanence site inspection where said material could have the potential to result in an unacceptable fugitive emission leaving the permitted site.
- Soils screening bunds will be maintained along the north-western boundary until the final waste levels with the final landfill phase has been achieved;

- The waste delivery vehicles will be fully sheeted to prevent fugitive dust emissions from occurring when the vehicle is in transit;
- All vehicle routes including site access roads and internal haul roads will be dampened down regularly during dry weather using a towed bowser;
- A site speed limit of 15 mph will be employed to reduce the risk of dust suspension resulting for vehicle movements.
- The majority of delivery vehicles will consist of Euro 5 or 6 regulations engines, primarily from the operators own fleet.
- On-site plant will meet with of Stage V non-road emission standards.
- Mechanical sweeping on metalled sections of the site access road will be carried out a daily to minimise the build-up of dusty residues that reduce the extent to which the mud and debris can be tracked;
- All site traffic will keep to designated haul routes to reduce entrainment of fine material into the atmosphere.
- Upon leaving the site vehicles will first be inspected and required to use the wheel wash facilities located at the site access/exit road prior to leaving the site;
- Drops heights will be minimised;
- Once deposited, waste will be compacted which will bind the surface and reduce the amount of loose material on the surface which could be wind-blown and result in a fugitive dust emission. Subsequent trafficking over the deposited wastes will be restricted until further waste deposits are being immediately tipped over the trafficked areas;
- Each landfill phase will restored with site-won soils and seeded within the next growing season. These activities will be avoided during periods of drought where compacted surfaces will be maintained to minimise the potential for dust generation;
- Wind speed and direction will be taken into account when undertaking operations. The prevailing conditions will be logged in the Site Diary.
- Visual dust monitoring will be conducted daily and during unfavourable weather conditions (such as dry weather with high winds) monitoring will be increased to twice daily. Should the staff member conducting the monitoring identify any dust on site, the area will be hosed down to prevent dust suspension via ‘wind whipping’. The frequency of the visual monitoring is deemed adequate due to the relatively remote location of the site, the nature of the surrounding agricultural receptors and the mitigation measures which will be in place to ensure the risk of dust emissions are low.
- A routine housekeeping regime will be maintained at the site to ensure regular checks are carried out and that any issues that may arise are identified quickly. Site staff will specifically target areas where dust and debris are most likely to gather. A water bowser may be used where deemed necessary, such as when noticeable amounts of dust are observed. This will prevent the build-up of particulates and reduce the risk of fugitive dust emissions.
- If necessary, the use of water mist/spray bars positioned downwind of the any significant dust sources will be considered where appropriate;

4.3.3 Details of the water supplies available at the site to support dust control operations is discussed in **Section 3.4.**

4.3.4 Site staff will inspect the water bowser daily to ensure the equipment is operational and to look for signs of normal wear and tear, as well as damage.

The mobile water bowser will be fully maintained in line with manufacturer's recommendations. During a period of time where the mobile water bowser is offline for maintanence, the Site Manager, TCM or a Nominated Deputy will arrange for supplementary dust suppression to be present on site. The number and type of supplementary dust suppression systems will be determined by the TCM utilising their technical knowledge and operational expertise. The Site Manager and TCM will ensure that supplementary dust suppression systems arrive on site prior to the commencement of any dust suppression maintanence works and will remain on site for the duration of these works. Furthermore, the supplementary dust suppression systems will remain on site until the TCM has confirmed that the on-site dust suppression systems are fully functional.

4.3.5 All material collected via manual or mechanical sweeping will be is likely to principally consist of inert quarry dusts and fines. Subject to initial inspection and testing to confirm the absence of contaminations, this material will be disposed of within the landfill.

4.4 Dust Action Plan

4.4.1 In the even that dust is observed, an unacceptable dust impact is caused at a nearby sensitive receptor and / or a justified complaint is received by the site management, the 'Dust Action Plan' will be implemented. Potential Sensitive Receptors within 1km of the site are identified in **Drawing No.: MG1001/14/10** and summarised in **Table DEMP1.**

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 the 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 identified 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 or TCM will also be responsible for daily recording of monitored dust levels and conditions that could lead to the potential for fugitive emissions of dust to occur. General daily visual checks / observations will also 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
- Any part of the site where dust can be generated by wind
- Material handling operations (such as waste deposit and compaction in the landfill void)

4.4.5 The Site Manager of TCM will record the findings of these daily inspections and use a graded scale of dust occurrences together with responses, as outlined in **Table DEMP3**, below.

Table DEMP3: Graded Scale of Dust Occurrences to be used in the Daily Inspections

Score	Condition	Action Required
0	No visible dust.	None.
1	Visible dust travelling up to 5m from the source.	Dampen surfaces down, review operations and weather conditions, and take further preventative actions as appropriate.
2	Visible dust travelling and reaching the sides of the quarry void, or edge of stripped areas during restoration.	Dampen down and reduce / relocate any operations causing the release; review operations and weather conditions, and take further preventative actions as appropriate to prevent further releases.
3	Visible dust outside of the operational area.	Carry out emergency dampening down and treatment of source areas; carry out inspections at the site boundary to ascertain the extent and amount of dust migration; advise MPA and provide a plan for any modification to operations to prevent recurrence.

4.4.6 The Site Manager / TCM shall implement adequate dust suppression measures to control dust from any activity which has the potential to generate unacceptable emissions of dust.

4.4.7 The control measured discussed in **Section 4.3** shall be employed to minimise dust.

4.4.8 If routine visual monitoring, continual proactive monitoring or monitoring in response to a complaint identifies the generation of significant visible volumes of dust, including dust on site (such as dust on plant and equipment or engineered surfaces) 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 by the TCM of nominated deputy:

- 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) and corrective actions shall be undertaken.
- Implement corrective action, such as the use of a mobile water bowser for cleaning site surfaces or wheel washing.
- Offending emission sources shall be suspended / isolated until corrective actions have been completed or adverse weather conditions have subsided.
- Once corrective actions have been completed, or adverse weather conditions have subsided, activities at the offending emission source will recommence under supervision from the TCM or nominated deputy for 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.

4.4.9 In the event that control methods cease to adequately deal with an emission of dust, appropriate arrangements will be made by the TCM to suspend operations until the situation that gave arise to the emission has been resolved. The Environment Agency will be informed at the earliest appropriate opportunity or by the end of the operational hours.

Table DEMP4: Source-Pathway-Receptor Model for Dust Emissions at the Proposed Husbands Bosworth Quarry Landfill Site

Source	Pathway	Receptor	Type of Impact	Dust Control Measures
Mud	Tracking of mud, dust and debris on wheels and vehicles which may drop off when the wheels / vehicle is dry.	See list of potential sensitive receptors in **Table DEMP1**	Visual soiling, also consequent resuspension as airborne particles once dry.	Delivery vehicles will be fully sheeted to ensure fugitive emissions of dust and debris does not occur in transit. A maximum vehicle speed limit of 15mph will be enforced at the site and will be communicated via signage and staff training. This will reduce the risk of wheels kicking up mud and / or dust on site surfaces which may become airborne. A mobile water bowser will be on site at all times which will be used to dampen down or wash dusty areas including haul routes, the access road, delivery vehicles, plant and equipment used on site and the waste deposits. Daily visual dust monitoring will be conducted to identify any mud or dust on site surfaces as soon as possible to allow for remediation (such as cleaning with the water hose). Good housekeeping will be implemented at the site.
Waste deliveries	Dust and debris falling off transport vehicles, particularly for waste deliveries and dispatches of potentially dusty wastes.	See list of potential sensitive receptors in **Table DEMP1**	Visual soiling, also consequent resuspension as airborne particles once dry.	All waste will be delivered to site in fully sheeted HGV's to prevent fugitive emissions. Delivery vehicles will enter and exit the site via the paved access road; prior to exit from the site the vehicle will be washed down via the mobile water bowser. Delivery vehicles will use the internal haul routes which will be dampened down where necessary. A maximum vehicle speed limit will be enforced and communicated effectively to reduce the risk of dust suspension via delivery vehicles wheels. Upon delivery, waste will be directed straight to the active tipping face of the landfill for deposit. This will reduce the handling of the waste as (apart from in abnormal circumstances) the waste will not be stored on site prior to deposit.
Mobile plant and equipment for the lifting and movement of waste materials	Dust and debris falling off plant and equipment and atmospheric suspension once dry. Movement of potentially dusty wastes resulting in atmospheric dispersion.	See list of potential sensitive receptors in **Table DEMP1**	Visual soiling and consequent resuspension from plant and equipment as particles become airborne once dry. Airborne particles via dust plumes as material is deposited and moved.	Drop heights will be minimised during unloading and waste deposit to avoid dusty plumes. A mobile water bowser will be available on site to dampen down dusty waste where required to reduce dusts suspension. This will also be used to clean plant and equipment used on site as part of the 'good housekeeping' regime. The use of bulldozers for the compaction of the deposited waste will occur within the landfill void, therefore the side walls will provide some shelter against the wind during this activity.

Source	Pathway	Receptor	Type of Impact	Dust Control Measures
Vehicles for transport of material within the site	Dust and debris falling off vehicles within the site when dry and subsequent atmospheric dispersion.	See list of potential sensitive receptors in **Table DEMP1**	Visual soiling, also consequent resuspension as airborne particles once dry.	On-site transportation distances will be kept to a minimum. A wheel wash will be used to clean vehicles prior to movement off-site. Metaled section of roads will be swept during dry weather to limit visible dust emissions. A mobile bowser will eb used to provide dust suppression along loose, dusty surfaces at the site. A vehicle speed limit will be enforced at the site and communicated via signage and staff training to reduce the risk of dust suspension due to vehicle wheels. The site access road and reception area will comprise engineered surfacing which will be washed down where required.
Vehicle exhaust emissions	Atmospheric dispersion.	See list of potential sensitive receptors in **Table DEMP1**	Airborne particulates.	All road going vehicles servicing the site will have either Euro 5 or Euro 6 emission classified engines. Drivers will be advised by site operatives to not leave vehicles idle when engine power is not required.
Non-road going machinery exhaust emissions	Atmospheric dispersion.	See list of potential sensitive receptors in **Table DEMP1**	Airborne particulates.	Operational site plant will achieve Stage V non-road going vehicles emission standards. A ‘no idling’ policy will be adhered to whereby plant and equipment will be turned off when not in use.

Table DEMP5: Preventative and remedial measures to be used on site to control dust and other emissions

Abatement Measure	Description / Effect	Overall Consideration and Implementation	Trigger for Implementation
Preventative Measures			
Engineered site surfacing where possible	The site access road will be engineered to enable cleaning and reduce the amount of dust, particulates and debris that is generated at ground level by vehicles entering and leaving the site.	The engineered site surfaces will be cleaned and maintained as good practice.	This will be implemented for the duration of the site's operational period. There are not considered to be any limitations to this abatement measure.
Site speed limit, 'no idling' policy and minimisation of vehicle movements on site	The site will have a maximum speed limit of 15mph in order to limit the amount of dust suspension by vehicles' wheels. Vehicle movements on site will be kept to a minimum to avoid dust suspension. A 'no idling' policy will be employed at the site to reduce unnecessary emission from vehicles on site.	These measures are employed as good practice.	These measures will be utilised for the duration of the site's operational period.
Minimising drop heights when unloading and depositing material into the landfill void.	During waste unloading, drop heights will be minimised to prevent significant plumes from being generated.	These measures are employed as good practice.	These measures will be utilised for the duration of the site's operational period.
Good housekeeping	A consistent, regular housekeeping regime will be employed at the site to ensure regular checks are carried out and that any issues that may arise are identified and dealt with as soon as possible. This also prevents dust and particulate build up.	This abatement measure is easy to implement and ensures staff vigilance with regards to potential emissions from the site. Staff particularly target areas where dust and particulates may gather. Site personnel will complete daily visual checks on the condition of the operational areas and cleaning will occur several times per week, or more frequently if deemed necessary.	This abatement measure will be implemented for the duration of the site's operational period. This abatement measure will be carried out in conjunction with other cleaning as necessary such as hosing down site surfaces.
Sheeting of vehicles	This prevents the escape of debris, dust and particles from vehicles in transit.	This abatement measure is implemented as appropriate measures.	This will be implemented for the duration of the site's operational period. There are not considered to be any limitations to this abatement measure.

Abatement Measure	Description / Effect	Overall Consideration and Implementation	Trigger for Implementation
Use of a mobile water bowser for dampening down and cleaning site surfaces	Water will be used to dampen down and wash off residual materials from site surfaces to prevent dust emissions. In the unlikely event that vehicles entering the site are heavily soiled with mud or debris, they can be cleaned. Where required and visible mud, dust or debris is present on delivery vehicles, prior to leaving the site they will be washed down to prevent tracking onto public highways.	This abatement measure is implemented as appropriate measures. The washing down of surfaces with water have proven results. The water bowser will be connected to a water supply from onsite surface water lagoons and / or groundwater.	This will be implemented for the duration of the site's operational period. There are not considered to be any limitations of this abatement measure. Site staff will inspect vehicles entering and exiting the site and advise drivers if the vehicle needs to be cleaned in any capacity. Site personnel will observe site surfaces and undertake cleaning with the water bowser when appreciable dust is seen.
Remedial Measures			
Use of a mobile water bowser for dampening down site surfaces, vehicles, plant and equipment	The cleaning of site surfaces, vehicles, plant and equipment will ensure that any dust or debris that has settled is dampened down and washing into the appropriate surface water drainage route. This will ensure that suspension and airborne dispersion does not occur.	This method is highly effective at reducing the risk of dust emissions and preventing the build-up of particulates on site surfaces.	This will be implemented when required for the duration of the site's operational period and will be undertaken when appreciable dust or debris is observed on site surfaces. This method is considered to be highly effective.
Sweeping of roads during dry weather to limit visible dust emissions and the tracking of mud and debris	The sweeping of roads during dry weather will limit the suspension and airborne dispersion of dust and particulates.	This method is highly effective at reducing the risk of dust emissions and preventing the build-up of particulates on site surfaced.	This will be implemented when required for the duration of the site's operational period and will be undertaken when appreciable dust or debris is observed on site surfaces.

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. External site access roads will also be included in the inspection to ensure that delivery vehicles entering and exiting the site are not tracking mud, dust and debris onto the public highway.

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 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 DEMP2.** 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 Particulate Matter Monitoring

4.6.1 The site does not require Particulate Matter Monitoring as it is not within an AQMA and owing to the waste types and emission sources at the site, there are limited sources of fine exhaust emissions.

5.0 REPORTING AND COMPLAINTS RESPONSE

5.1 Engagement with the Community

5.1.1 Mick George Limited will operate an open communication channel with the local community who may be affected by the site operations. The Site Manager or TCM will liaise with neighbouring residential properties every quarter for the first year of operation, and annually thereafter to determine if the facility is causing a definable adverse impact off site. Appropriate contact information (e.g. telephone number and e-mail) will also be displayed at the site entrance.

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, TCM or nominated deputy.

5.1.3 The Site will also operate 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 The facility will be readily contactable to outside organisations and to members of the public. The site signage board (placed in a visible location such as the site entrance) 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 Any complaints received directly to site during operational hours will be notified to the Environment Agency as soon as possible and at the latest by the end of operating hours on the same day. Any complaints received outside of operational hours will be notified to the EA by the end of the operational hours for the next working day to ensure that a thorough investigation process can be completed.

5.2.4 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 Facility in the event dust emissions has been detected or they want to discuss any activities etc at the Facility;
- 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 complaints received directly to site from members of the public or via the Regulatory bodies (including the EA and Local Authority) will be recorded and further observational monitoring will be instigated at the location of the complaint and on site to determine the extent and location of the fugitive emission, and the materials and / or process at the source will be identified in order to assist in the investigation and determining the source of the emission, as much information and detail about the complaint as possible will be recorded.

5.3.2 Should a complaint be received, a 'Dust Complaint Form' (an example of which is included in **Appendix DEMP1**) will be completed which includes the following information:

- Complainant name, address and telephone number.
- The time and date of the complaint, dust, weather conditions, temperature and wind strength and direction.
- Results of the latest visual dust monitoring and the Operation and Maintanence Daily Inspection carried out by facility personnel.
- Complainant's description of dust.
- Other complaint comments regarding dust emissions.
- Any other previous known complaints relating to the installation (all aspects, not just dust).
- Any other relevant information.
- Operation conditions at the time of the offending dust emission (e.g. waste loading / unloading, noting any abnormal conditions that may have contributed to the complaint.
- A summary of the actions taken and the final outcome.
- Confirmation of who filled in the form and who approved it (complete with the date and signatures)

5.3.3 Records of complaints received (i.e. Dust Complaint Form) will be kept in the appropriate file in the site office for inspection and review by both internal and external personnel. Copies will also be held at the company's Head Office.

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. It is essential to correctly identify the source of the dust emissions to ensure that mitigating measures can be applied effectively and appropriately. 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 off site 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 24 hours 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 site 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 issued has been addressed and to monitor the effectiveness of any control measures undertaken.

5.5.2 Due to the potential for dust emissions to be generated from both operational activities (e.g. movement of vehicles and operation of equipment (e.g. for compaction of the deposited waste)) and passive dust sources, such as road surfaces, it is proposed that site operations are not to be suspended until such a time as the source is identified. Upon identification of the dust emission, this source will be isolated and appropriate mitigation measures will be applied.

5.5.3 Once the complaints investigation process has been completed, the findings will be collated and a formal written response summarising the findings of the investigation (and action taken) will be provided to the complainant. This response will be submitted to the complainant within five full working days from the date on which the complaint was received. If a summary response cannot be generated in this timeframe, the complainant will be informed of the progress and advised on when the summary response document will be provided.

5.5.4 Records of complaints received (i,e. completed Dust Complaint Forms), as well as the summary report, 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 24 hours). 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 will be identified and implemented accordingly.

6.0 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 **Section 5.5** above 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, waste hauling or waste deposition into the landfill void. Mist / water sprays will be utilised if necessary and operations which may lead to increase dust emission will be temporarily suspended.

6.2.2 Consideration will also be made as to the suspension of receipt of dusty/powdery wastes.

6.3 Event Reporting

6.3.1 In the event of any significant environmental emergency / incident, a representative of Mick George Limited ('Mick George) 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 detail (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 Environmental and Accidents Risk Assessment (*Doc. Ref: MG1001/09*) 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 Dust Emissions Management Plan (DEMP) outlines the overall approach to be taken by the site operator to ensure that dust emissions are minimised, measured and remediated as necessary.

7.1.2 The location of the site is within a predominantly agricultural area. The majority of receptors immediately adjacent to the northern, eastern and western boundaries consist of open agricultural fields, with the River Welland located on the southern site boundary. It is considered that these receptors will be of low sensitivity of any potential emissions of dust.

7.1.3 Notwithstanding the receptor classification, given the application of appropriate documented management techniques at the site, the potential for fugitive emissions of this nature will be strictly limited, therefore, the risk to the nearest residential and immediate ecological receptors is considered to be low.

7.1.4 Additionally, given the management techniques applied on site and the general prevailing wind directions (from the south-southwest), it is considered that the risk to the nearest residential receptors in the village of Husbands Bosworth (north-west of the site) is low as any fugitive dust will not be blown in the direction of the village.

7.1.5 By implementing best practice measures to control and mitigate the generation and transportation of dust, it is considered that dust emissions from the site can be adequately controlled.

7.1.6 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. 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.